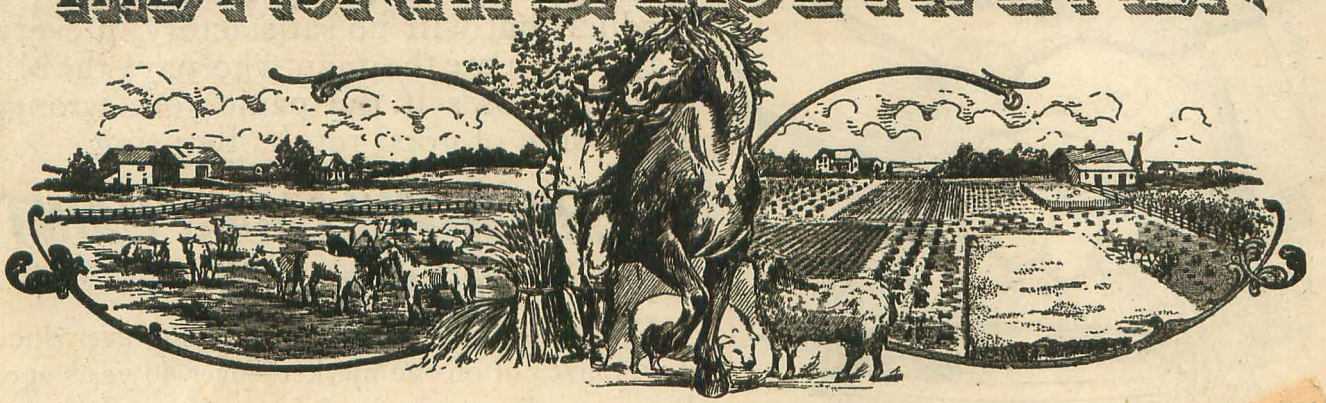
THE NORTH DAKOTA FARMER

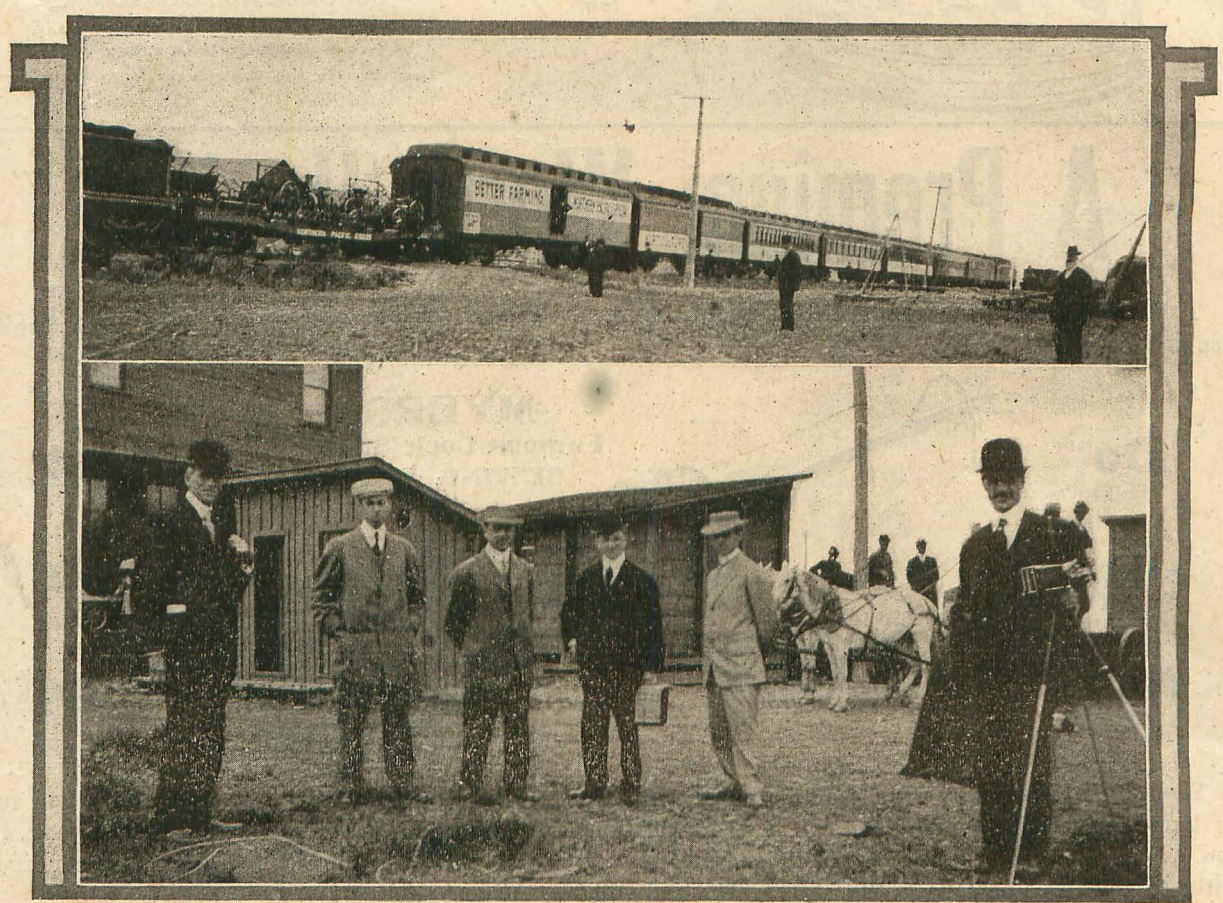


"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

Vol. 11, No. 12
LISBON, N. D.

JUNE 15, 1910

50 Cents a Year
FARGO, N. D.



Better Farming Special Making its First Stop---Davenport

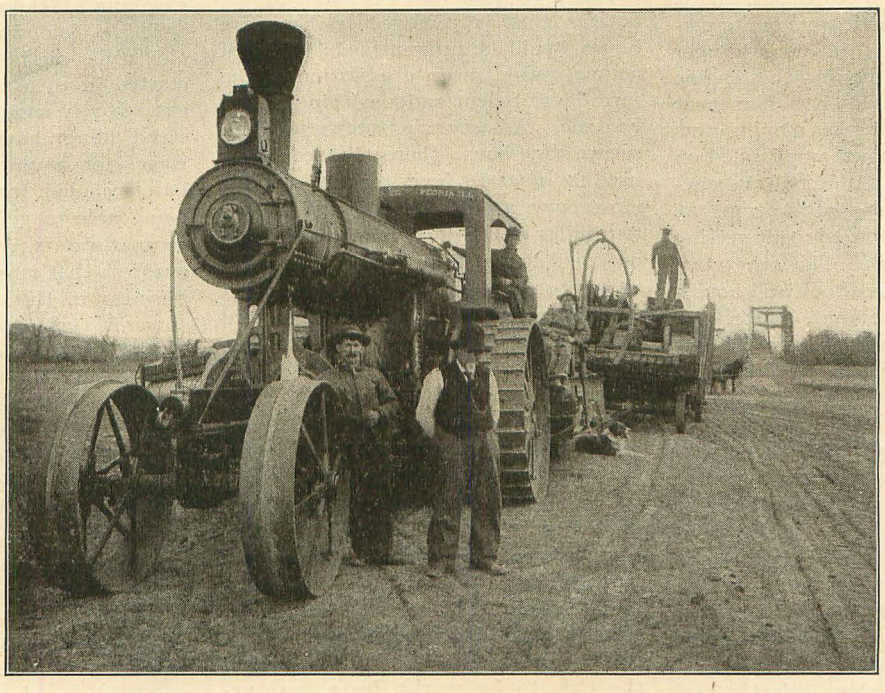
Thru the courtesy of the Northern Pacific Railway the Agricultural College was "placed on wheels," and thousands of North Dakota farmers witnessed the Better Farming Demonstrations. See Page 14.

THE NORTH DAKOTA FARMER

Vol. 11, No. 12 LISBON and FARGO, N. D., JUNE 15, 1910 50 Cents a Year

A Horseless Farm

How an Automobile Farmer began on a Montana Prairie----A Concrete Case which Illustrates the Rapidity with which the Grain Growing Possibilities of the Montana Stock Range are being Realized



Front View of a Modern Farm Engine and its attendant accoutrements.

NEAR the little town of Ellendale, N. D., two young men had grown up from boyhood, first on their father's farm and, later, tilling their own land; the younger brother devoting his time especially to raising the best horses in the country and the elder brother, in addition to his farming interests, engaging in the farm implement business. This led up to the use of a steam plow on his farm. In theory it was the correct way to farm but in practice it failed to work successfully in that district. During the spring months when the steam plow was needed, the little swales were too soft and miry for the engine to cross, and the dream of this young Dakota farmer for a horseless ranch could not then be realized. Having an equipment representing a cost of five or six thousand dollars and only being able to use it during a portion of the year, caused him to look for a ranch where he could make better use of his machinery. Late last fall he came to Montana and finally selected two sections of railroad land four miles east of Terry on a bench about three hundred feet above the Yellowstone river. This land at that time was priced at $15 per acre. It had been on the railroad company's price list for about six months but the old timers shook their heads at the thought of buying range lands at such an enormous price when they had refused time and again to take the land at $1.50 and $2.00 per acre.

This young North Dakota Farmer, A. J. Pehl, remarked that this land was either worth fifty dollars an acre for farming or else it wasn't worth over five dollars an acre for grazing purposes; that he would bet it was farming land; therefore he bought at the fifteen dollar price. On Sunday, March 20th, he returned to Terry, having loaded three carloads of freight which were enroute from the North Dakota home in charge of his younger brother. His farming operations contemplated the hiring of three men besides himself and brother, and in order to be ready for work by the time their machinery and household

effects arrived by the freight train, he began building a house on skids in one of the Terry lumber yards, expecting to haul the house out to the prospective farm. Having the lumber handy and being in town where he could hire help, he built a little farm house 14x20, two stories high, with stairway, doors and windows, all complete and had it ready for occupancy on the following Wednesday when the family moved in. That day the steam engine and the other two cars of movables arrived and were unloaded. The engine steamed around to the lumber yard and hooked on to the house, much to the amusement and astonishment of the whole population of the little town who had been prophesying every kind of failure for this eastern tenderfoot who thought he could show them how to build a house in town and haul it out in the country. The next morning, however, the engine started off with the house, hauling it off on the skids as tho it were a stoneboat, and it being occupied as tho it were on its permanent foundation. At noon dinner was ready in the house, the engine stopped and all hands had dinner at home. After dinner the moving was continued and the house was landed on the top of the bench within one and one-half miles of its permanent location. At this point ten days were spent getting ready for farm work. The other two cars of machinery, livestock and household goods were taken out, lumber was hauled and a barn built for the six horses which had been brought along, a water tank was constructed and a gasoline engine for pumping was set up at the well on the N. P. Railway Co.'s demonstration farm, where arrangements had been made for getting water while spring farming operations were being conducted. After the barn was built it too was hitched on behind the house and the engine took the house and barn together along the road for a mile and a half until they reached home.

Monday morning, April 4th, the real work of plowing and seeding began and Saturday noon, after five and one-half days of actual time spent, 165 acres of prairie sod ground had been broken, put into shape, seeded and harrowed at the rate of 30 acres per day, and this work will continue at the same rate until the entire acreage of 1100 acres shall have been seeded.

The 32 H. P. steam engine pulls ten 14-inch breaking plows which turn over twelve feet of sod. These plows are followed by a clod crusher of roller pattern which mashes down the sod and pulverizes the surface, making a most excellent seed bed; this is followed by a 1-2foot, double disc seed drill which, in turn, is followed by two 12-foot harrows, one behind the other. Thus, one trip over the ground with this kind of an outfit breaks the sod, pulverizes it, seeds it and harrows it twice leaving the surface in ideal condition for the retention of moisture. At the end of a week the first seeding had sprouted and was coming out of the ground.

As soon as the 1100 acres of land shall have been plowed and seeded the next work will be to fence it, then a well will be drilled and this ranch will be a fully developed wheat farm within sixty days from beginning of operations. 200 acres are being seeded to oats, the remainder to flax.

The labor employment on this farm consists of two men with the plowing and seeding outfit, one man to haul coal and water for the engine and household use. The fourth man has been hauling seed grain from town until recently his wife, who was doing the cooking, was taken down with scarlet fever evidently contracted on the train. The doctor notified Mr. Pehl that the scarlet fever patient must be removed or the entire house would be quarantined. This, of course, would mean a cessation of the farm development and something had to be done. A hasty trip to town failed to secure any house there that could be used for a scarlet fever tenant. In this emergency a little farm house within two miles of the Pehl ranch, not being occupied at that time by the owner, was thought to be the most available way out of the predicament. It was suggested that the patient be moved over to the house, but Mr. Pehl jumped into his automobile, ran over to the little house, sized it up as being well enough built to stand being moved across the prairie, so that he went back to his ranch, put a couple of three-inch plank on his engine, unhooked it from his plowing outfit, went over to his neighbors house and hauled it back, placing it beside his own dwelling house, and moved the fever patient into this borrowed house. All of this from the time the doctor pronounced the case to be scarlet fever, was accomplished in less than three hours. Mr. Pehl in borrowing this house for a hospital sent word to the owner that he would either pay him for his house and keep it, or would have it thoroly fumigated and moved back, putting it in just as good condition as he took it, also, pay for the use of it.

In a new country a good many things are borrowed and loaned in the beginning but it is not often that a house is borrowed under such circumstances. The husband of the scarlet fever patient now does the cooking and takes care of his wife. The other teamster does the extra work of hauling the seed. The only man without a steady job on this ranch is Mr. Pehl himself who manages to keep busy seeing that everything moves along like clockwork, without any hitch anywhere. He uses an automobile for making trips to town, running errands and doing the various things that are necessary to be done on a ranch of this kind to make everything move right. He also has another automobile which he will use after this year as a small truck and motor with which to harrow and do the heavy drudgery about the place. He planned to haul a 20-foot harrow with this slow geared auto. It is declared now that after this year not a single horse will be kept on his farm. The plowing and harvesting will be done by the heavy engine, the lighter harrowing will be done by a low geared automobile and the running around on errands and for supplies, etc., will be done with an ordinary automobile.

The horses now used on this place consist of six head, the lightest one weighing 1600 pounds and the largest, being a colt coming four years old, weighing 2,000 pounds.

This style of farming differs from the old style method where the farmer started in with a few dollars, in some cases barely enough to make his homestead filing, having to work out for wages for a year or two and earning barely enough for his living and finally being able to get a cheap team. The comparison is an illustration of the progress that is made in every kind of business in this age. This particular story is typical of hundreds of other similar cases in Montana this spring but of the many thousand of people that are taking part in the development of Montana prairies the greater majority of course, are the people of small means, starting with perhaps a few hundred dollars or a few thousand dollars, all of whom are encouraged and helped by such aggressive spirits as the Pehl brothers whose accomplishments lend courage to everybody in the entire community in which they operate.

Farmers Must Organize

An Address Delivered at St. Louis before the Farmers' Union---By J. H. Worst, N. Dak. Agri. Col.

(Concluded)

Co-operation Contagious

The business became contagious. The commercial organizations were soon forced to sell out to the farmers or operate on the smallest possible margin of profit. These commercial concerns no longer fixed the price of milk. The market for dairy products did that.

The butter and cheese made in Holland enjoy a good reputation, especially the latter, and aside from what is made on the small farms, the immense volume of dairy products of that country is now manufactured almost exclusively in factories owned and directed by farmers.

In imitation of this co-operative system, the potato growers of the peat districts of Groningen have erected and equipped more than fifty starch factories, all of which are likewise operated on the basis of securing to the farmer the value of his crop, less the actual cost of production and manufacture, depreciation of plant, and the small commission charged for superintending the distribution of the finished product. By this method, the farmer does not depend upon a price fixed for his potatoes, but upon the market value of starch. He enjoys both the farmers' and the manufacturer's profits, by selling starch, instead of potatoes.

Many other farm products are similarly converted into manufactured commodities and the net proceeds distributed among farmers in proportion to the raw material each one furnishes.

The reason assigned for establishing these co-operative organizations is the thing I wish to emphasize. Said they: "After paying rent"—for most farmers there are renters, "there was not sufficient margin left to live on if we gave a considerable portion as profit to middlemen or manufacturers. We simply had to eliminate them and learn to attend to our own business. When capitalists purchased our crops, we had no means of knowing what they were really worth. Now we know that we get all that is coming to us."

The Business View

If necessity compels the Holland farmer to become a manufacturer in order to obtain what the consumer pays for his product, less the cost of manufacture—and to do this he had to dispense with those who formerly exacted the difference between what the producer received and the consumer paid—it would seem opportune for the American farmer to take the hint and also begin the work of eliminating unnecessary agencies. This does not imply that in many instances the American farmer should turn manufacturer, but nevertheless he has the opportunity, thru co-operation, in many instances to shorten the distance between his farm and his customers—to remove many obstructions that have been erected between the producer and the consumer.

There has grown up between the producer and consumer a big crowd, not all of whom are useful or indispensible. Too frequently they manipulate the markets for their own profits. Whether they depress the price of farm products or increase their cost to the consumer, or play both strings at once, is immaterial to them. Their graft runs readily into the millions and is a menace both to producer and consumer. Any system or organization that will eliminate the uninvited portion of this crowd and bring producer and consumer into close relationship, will benefit the whole country. The millions that annually go into the coffers of these gamblers justly should be saved—partly by the farmer and partly by the consumer—and thus make farming more profitable and living less costly.

A Business Proposition

As farmers and consumers are chiefly interested in this game, and as they are numerically strong enough to control it, it would seem but a fair proposition for them to do so. The mere fact that it is a large and complex business proposition should not deter them. The farmer must learn to do business. He has trusted others to transact his business, both political and commercial, until his power—except as a mere producer—is almost a minus quantity.

Conflicting Interests

In a country so large and populous, there are bound to be conflicting interests. To harmonize these interests for the general welfare is worthy of the best efforts of American statesmen. As all business enterprises are more or less selfish in character, and as they, in general, are highly organized for offensive and defensive purposes, the agricultural interests of necessity also must be protected by systematic organization or remain the victim of their own lack of co-operation. To accomplish its purpose, farmers must exercise discretion and distinguish between purely political and business issues. When necessary, they must create issues and stand unitedly for their proper settlement.

Farmers, therefore, should participate somewhat unitedly in the affairs of government, both state and national, and to the extent of their numerical strength, protect their financial investment and the interests of the open country. A vocation that annually creates more than $8,000,000,000 of the country's wealth should have a material influence in shaping the laws and economic policies of the government. Such vast interests cannot be safely, or at least should not be wholly entrusted to proxy management. Every interest of any importance must personally fight its own battles if it would enjoy what legitimately belongs to it. This requires intelligent, aggressive, united action. I here make no suggestion in favor of promoting any unfair advantage. I refer to natural right,—to what is just and equitable.

No class in America today is more vitally interested in the "square deal," than farmers. No class enjoys a better opportunity to enforce the "square deal," with less suspicion of selfishness or mercenary motive. And yet no class in proportion to numerical strength or financial interest is so utterly powerless—so completely at the mercy of predatory influences.

Fortunes Accumulated Unjustly

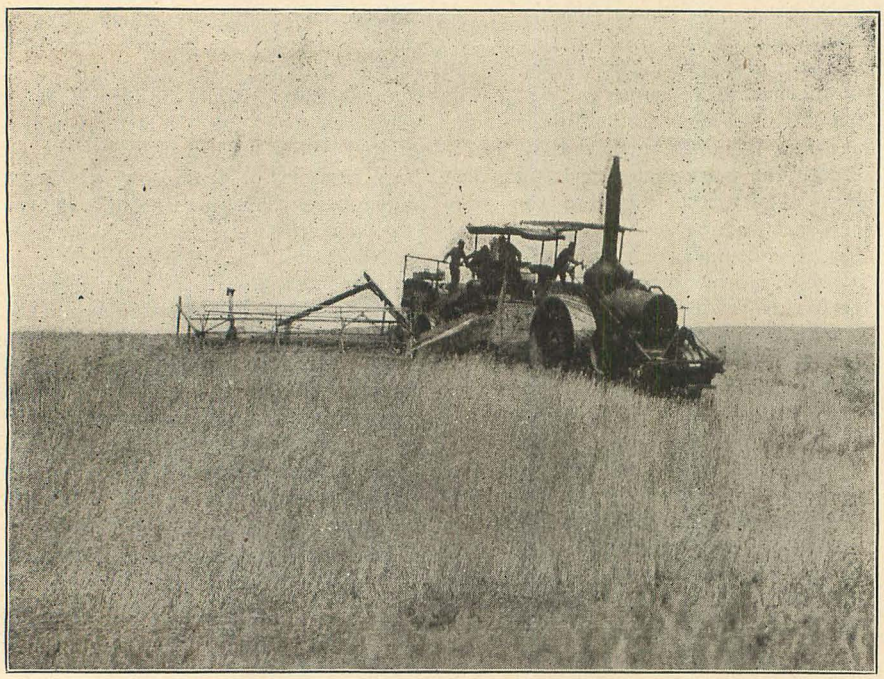
The accumulation of vast fortunes by undergrading grain and otherwise speculating in agricultural products, in watering stocks, adulterating, or falsely labeling goods, and in giving short weight or scant measure is not only a menace to the public welfare but near approach to robbery, practiced openly and ofttimes defiantly against the whole people. The extreme difficulty of securing even a measure of protection to the consuming public by legislative bodies should be sufficient proof of the dangerous power of such conscienceless combinations of wealth. And yet the farmers of the nation, by united action, could stand congress on its head at any election.

Whatever business or economic reforms are necessary, therefore, must be initiated and emphasized by those industrial classes who, by nature of their vocation, cannot so readily profit by unfair methods, but who are first to suffer on their account.

On general principles, the concentration of vast wealth in few hands and the power that may result from the use of such wealth, especially when not honestly accumulated cannot be estimated; for it is safe to presume that no

better ethics will be exercised in its use or final distribution than was exercised in its accumulation.

Farmers by united action, have the power, hence the opportunity, to cure these and many other economic evils, at least to direct the forces that breed them into less harmful channels. The methods employed in amassing inordinate fortunes, in too many instances, assumes the dignity of a moral issue and as such the remedy cannot with safety be relegated wholly to professional politicians. Neither should the power to make and execute the laws of the country be delegated too largely to a profession that by common consent loses neither caste nor honor when



A Combined Steam Harvester and Thresher. Cuts, Threshes and Sacks grain at one operation.

defending corruption and criminality by every subterfuge and technicality that ingenuity can devise.

I am aware that it is highly improper to array class against class, or to create class prejudice. We have all been voluminously instructed on this point by the men whose patriotism is second only to their desire for political office. Farmers, however, in participating more personally and more unitedly in governmental affairs, can best serve the general welfare, for their interests cannot easily run counter to the public weal or endanger the principles of democracy. They must exercise the discretion, however, of choosing their representatives, even should their choice quite frequently fall upon men neither seeking office nor willing to spend a fortune to secure one.

Business and vocational integrity and a just appreciation of the needs of all other legitimate business enterprises, however large, if they are honestly conducted, should take precedence over merely partisan victories.

National Organization

An organization, national in scope, would not be an over-ambitious scheme for the purpose of unifying the influence and safeguarding the interests of a vocation of such vast importance to the whole country. Subsidiary to a national organization—state county and local organizations could readily be provided for, but sufficiently varied in character and flexible in purpose, to meet the agricultural needs of every section of the union. The tobacco grower, the cotton planter the breeders of livestock, and those engaged in wheat, corn, sugar, vegetable or fruit culture, tho differing widely in agricultural methods that must be employed and market conditions that must be fostered, yet fundamentally their interests are mutual. All suffer more or less because the far end of their business is regulated for them and their profits absorbed at the pleasure of unsympathetic operators. The farmer's profit, measured by profits exacted by those operating beyond the farm is seldom, if ever, so large in proportion to the capital he has invested, the labor he performs and the risk he assumes, as theirs and rarely as certain.

Some of the specialized divisions of agriculture have already perfected systems of distribution which have proved highly gratifying, and their success should blaze the way to broader efforts in other, but not less important divisions of agriculture.

The Grange, the American Society of Equity, The Farmers' Educational Cooperative Union of America, the Farmers' National Congress and numerous other organizations for social, educational or protective purposes have been effected in different parts of the country, but they are so unrelated to each other, save perhaps in sympathy, that no real effective agricultural brotherhood, embracing all farmers, can be said to exist. Neither has the business of agriculture, save in a few instances, been carried far enough to reach the consumer, or even to eliminate the predatory speculator. Farmers have not yet seen fit to manage the business end of their vocation—the end farthest removed from the soil—but where the margin of profit in reality, is determined. The law of supply nad demand should freely operate, but should not be manipulated by antagonistic or purely speculative interests.

Farmers Not a Dangerous Element

To encourage by organization, the sympathetic and business unity of the entire national agricultural interests would be of less significance, however, were it not for the fact that agriculture is the enduring basis of American prosperity, and that those who till the soil are, by nature, so constituted and so situated that they never can, by combination or otherwise, endanger the republic. On the other hand, they are now, as they always have been and always will be, the conservators of the country's most cherished principles. ways will be, the conservators of the country's most cherished principles. Hence, the federation of all agricultural societies, the harmonious co-operation of all agricultural interests for the purpose of eliminating needless speculative parasites, for the insurance of equitable profits for the producer and fair prices for the consumer, will prove a blessing to the largest and most vital, yet most generally wronged, elements of American society. Moreover, anything short of nation-wide organization and co-operation will prove less effective, if not disappointingly barren of desired results. One pound of unity outweighs a ton of separate, discordant, independent ounces. Capital understands this law and profit by it, yet capital holds no mortgage on it. Only by the federation of all agricultural societies, or the establishment of a general agricultural union that shall give direction, along broad lines to all educational and legislative effort necessary or intended to promote the agricultural interests, can agriculture successfully cope with the powers that are

bent upon making it the bond servant of their ease and extravagance.

Many sectional organizations, operating separately and indipendently, are as easily overpowered as a divided army. A good general always divides the opposition, when possible, and then proceeds to annihilate it, section by section. The great agricultural industry is no exception. In many states, it stands as a helpless majority, battered and bruised by the men it periodically entrusts with its business affairs.

United, however, agriculture is a giant—powerful, but just; unorganized it is weak, helpless, the prey of greed that lusts for unearned wealth.

European Governments Co-operate

In several European countries, notably in Germany and Belgium, the National Agricultural society takes charge of and gives direction to the business of agriculture. Agricultural banks are organized in the interest of farmers. They receive his deposits and loan him money for the distinct purpose of giving him aid and encouragement. These banks also loan money for the establishment of manufacturing enterprises which enable farmers jointly to prepare many varieties of raw material for the general market. The officials of the Agricultural society also advise farmers in matters relating to purchase and sale in order to secure best market for products, and lowest prices for commodities required for home consumption. In every possible way, the farmer is safeguarded by honest laws, faithfully executed, against adulterations and frauds and the exactions of useless middlemen. In short, the whole body of farmers constitute the Agricultural society, whose appointed agents transact the general business of agriculture. The governments are not only in sympathy with their Agricultural societies, but render them substantial assistance and co-operate with them in many ways.

By pursuing somewhat similar methods we can here, as they do there, make agriculture a complete business instead of a mere producer of raw material. Over there, agriculture has assumed the attitude of independence and self-protection. It is big with importance and responsibility and depends upon its organized individuality for success and respectability in its relation to the economic and industrial affairs of the nation.

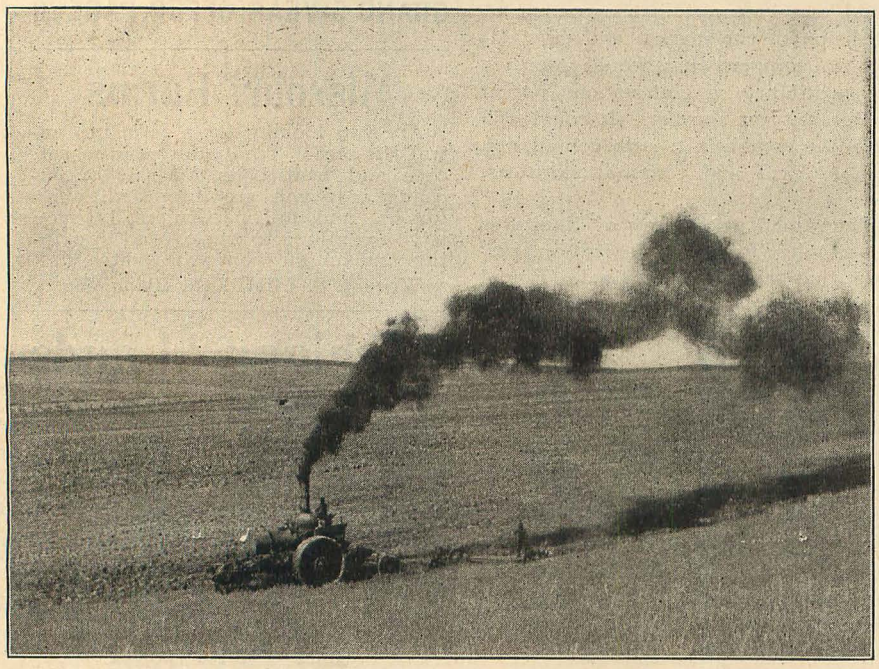
The products of the soil are intended for the ultimate consumer. The business of agriculture is not only to produce, but in many lines, it also would be highly profitable to deliver the goods to the consumer in manufactured or partly manufactured form. For other farm products the agricultural society, thru its own agents, could readily ascertain the needs and condition of the market and give advice to shippers that would preclude the possibility of glut at one period and scarcity at another. It could well afford to establish its own commission houses, local and terminal elevators, etc.

The American Society of Equity is the simplest form of co-operation, perhaps, that has yet been devised. Bound together only by legitimate self-interest, with no object beyond a fair profit for a bushel of wheat, a pound of cotton, tobacco or wool, on the exact principle that the hat maker fixes the price of his hats, the members of this society have demonstrated that co-operation among farmers is not an impossibility. This society is demonstrating an important principle, but can doubtless be federated with other organizations that deal more intimately with the social and educational phases of rural life and the agricultural industry, without impairing its organization or purpose. The same, doubtless, is true of other organizations that at present have but a local or sectional significance.

A national agricultural society or national agricultural union thus can readily accomplish a revolution in the economic affairs of the American farmer and deliver him and the country from an incubus that too long has made a business of "reaping where others have strewn". Agriculture is too important to occupy even a secondary place in our political or industrial system. It is of prime importance and owes to itself and to the whole country such systematic organization and co-operation as may be necessary not only to insure its own prosperity, but the principles of justice and equity everywhere. The opportunity for accomplishing beneficent and far reaching results is here at the command of these assembled farmers.

GRAND 5-YEAR OFFER, PAGE 20

OUR AWL OFFER TAKES, PAGE 2



Modern Farm Machinery now breaks twelve feet of sod and pulverizes, seeds, and harrows it at one eperation Engines use either coal or gasoline.

Summer Management of Bees.

By M. V. Facey, Supt. Honey and Bee Department Minnesota State Fair

Altho this article has to do mostly with the summer management of bees yet I shall commence with the taking of bees from their winter quarters in spring. Unless bees are uneasy they should not be disturbed until the earliest flowers begin to appear, if they are uneasy I take them out as soon as they can take a fly. When I take my bees from their winter quarters I make a business of it until they are all out, but it takes several days to complete the work. With a smaller lot of bees in a single yard I would select a time when the next day promises to be fine and carry them out in the evening when too late or cool for the bees to fly. In the first case where they are carried out in the morning or thruout the day and take an immediate flight they come out with such a rush and are so eager for their flight that they scarcely mark the location of their own hive and so, returning after their flight, are apt to go into any hive, often selecting the busiest appearing one. This selection increases the activity of the colony and draws other bees so often the beekeeper at night when the bees have settled down will find one-half his bees in less than one-quarter his hives and many of his colonies left very weak.

We call this "drifting". When the bees are set out in the evening they become accustomed to the change of air before flight; they also warm up gradually in the morning and thus take their flight more soberly and therefore, taking the time and precaution to mark the locality of their own home, each bee returns unerringly there. If the weather should prove unfavorable during the next day or for a number of days, no harm will result as the bees will remain quietly in their hive until it is again warm. When the bees are all out on their stands, cover them up snugly as possible and if you have a protecting cap, place that over them and leave them for about two days or as soon as the weather is warm enough to open the hive when you will examine them to ascertain the amount of stores they have. Any colony with less than eight or ten pounds of honey should be fed using a Division Board Feeder and a syrup of granulated sugar and water equal parts. This feeder can be purchased of any person dealing in bee supplies; it holds about a quart of feed and it can be used without any loss of heat from the hive.

About two weeks after placing the bees out, examine them again and notice if any are without brood or eggs; if any are they are probably queenless and should be united with other weak colonies with queens, but at this time you will merely set each queenless colony over some other one which can profitably use the bees, and leave them with no exit, except thru the lower colony or hive, for a few days when you will drop the frames of the upper hive, with their bees upon them, into the vacant space of the lower hive and when the hive is closed the work is done without any loss of bees or disturbance, whereas if you had shaken the bees into the lower hive they would have been immediately destroyed.

You will have but little to do with your bees after this until their increasing numbers call for additional room except to see that they do not suffer from a lack of sufficient stores to carry them over periods when flowers may be scarce or the weather unfavorable. You will pay dearly for any stinginess or fancied economy in dealing out any necessary supplies to your bees at this time as they cannot raise broods very heavily without plenty of stores for all their needs and usually they do not feel safe in starting much unless they have a few pounds to draw upon. Any shrinkage of the brood at this time will lessen to a still greater extent the working force when the honey flow arrives. If you desire a satisfactory crop of honey you will carefully time the putting on of the supers or upper stories. The proper time to do this is when the bees first begin to stick little white spots of wax on the top of the frames.

Production of extracted honey

The occupancy of these supers or upper stories may be greatly hastened by the use of two or more frames of drawn comb. The remainder of the frames may have drawn comb or full sheets of foundation or half sheets, or simply starters as you may prefer. For full sheets of foundation wiring of the frames may be necessary to prevent sagging when the bees commence their work upon it but for one-half sheets or less no wiring is necessary.

"Medium brood" is the proper grade of foundation to use. Custom varies as to the time of extracting honey; some beekeepers continue to tier up stories as the bees fill those upon the hive until the close of the season. Tho this plan is favored by many prominent beekeepers it is open to many objections some of which I will mention. The first and greatest objection is that it greatly lessens the crop. Bees are prompted to store honey instinctively to provide against the vicissitudes of the weather in summer and their needs in winter and early spring. In harmony with the lavish way in which nature provides against perils to its existence, bees, in the time of lavish supply will store greatly more, if room be furnished them, than their natural requirements demand. Sometimes they continua their work until they have four or five stories of solidly capped honey on their hive; as their stores increase, however, their persist-

ence and energy in storing it decreases. They have the comfortable feeling of being well provided for then also they are widely scattered in an exaggerated hive with their busiest work in a distant part. In this way the crop of honey is often cut down to one-half what it should be. A good strong colony of bees in a good locality, during a good honey flow will fill their upper stories with honey, ripened, and capped, in ten or twelve days. This honey should be immediately extracted and the emptied combs set back upon the hive. It does an old beekeeper good, and a novice either for that matter, to see the energy and rush with which the bees go to work to fill up again. On account of the impetus thus given their work, the second extracting is always greater than the first and I have found by actual test that, if I extract one-half a yard and leave the other half unextracted, giving each lot all the space they will occupy, those bees I extracted from almost invariably have more honey at the second extracting than the unextracted ones and by taking the honey as soon as ready thruout the entire honey season, this habit of work is continued to the end and is the secret of the large crops of honey which some beekeepers secure.

When this honey is ready to take from the bees no time should be lost in doing so as every day of such neglect means a loss of 25 to 30 cents to the colony and often more; on the other hand equal care must be taken not to be carried away with your enthusiasm of **getting** and take the honey before it is ripened; this temptation yielded too always brings disappointment.

Run in the way I have above recommended. As the strength of the colony continues to increase a second story should be added and afterwards a third. The colony now occupies four stories. When they become too large for that I have not found further tiering up wise and would recommend division. All supers for extracted honey should be added above.

Comb Honey

As a rule the same condition applies in many things to conditions in the production of comb honey as extracted. In both cases the colonies must be strong and the supers put on at about the time when the bees begin to stick little dabs of wax on the frames. In producing extracted honey the upper stories may be either full-sized bodies or half stories while in producing comb-honey one-half stories only are used or of such height as to correspond with the height of the sections used. Formerly, sections four and one-quarter by four and one-quarter inches and seven sections to the foot were used almost universally but now a section four by five inches is very largely used either with or without beeway or passage; for the beeway sections plain separators are used but for the no-beeway or plain sections, fence separators are used and the beeway is provided for on the separators. Of the above sections, the plain four by five sections are the nicest appearing and best sellers and then follows the four by five beeway section.

"Light Super" foundation is used most commonly in sections—two pieces to each section, the upper piece reaching to within three-quarters or two-thirds of an inch of the bottom and within about one-eighth of an inch of either side, the bottom piece projecting up about one-quarter of an inch; used in this way the bees will fill the section out fully on all sides and the honey will be worth two or three cents a pound more than as frequently produced by the smaller beekeepers. Bees do not take as readily to a super of sections as to frames and to hasten their acceptance we use a shallow frame of drawn comb on either side the case of sections. They will commence work at once on these frames and pass from them to the sections, the work being commenced will be continued. When the super is nearly finished, raise it up and place another below it and thus continue, being sure at

MYERS SEWING AWL

Many of our readers have already taken advantage of our special premium offer found on page 2 of this issue. This offer is liable to be withdrawn at any time. These awls cannot be bought for less than one dollar, and yet this awl is given as a premium for simply one two-year subscription or two one-year subscriptions.

all times to keep the bees at work. Remove the upper super as soon as fully capped; this is quite important as the sooner it can be taken off the whiter the comb will be. If left on too long the honey very soon begins to show travel stain.

When your super of honey is ready to remove, place a honey-board, having a bee escape in it, between it and the colony below so as to run the bees down and the next day your super will be free from bees and ready for removal.

Care of the Honey

Extracted honey as soon as taken from the bees and extracted is strained to remove any small particles of wax that may be in it and should be immediately run into cans or barrels and stored in a dry room and if warm it is no objection. Cans are preferable to barrels as you run less danger from leakage and the flavor is often retained better.

Comb honey should be kept in a dry room with an even temperature and if quite warm all the better.

Do not store honey in open vessels in a damp room as it has a great affinity for water and will soon spoil in such a place.

Seed and Seed Treatment

By Henry L. Bolley

SOWING FLAX ON NEW LANDS

I am receiving numerous letters requesting information as to how to handle the work of cropping new land to flax.

If the seed is to be placed upon spring breaking the point of importance is to break the sod as deeply as it can be conveniently done and yet have the furrow slices lie flat. The plowing should be followed immediately by a roller, and the corrugated roller does the best sort of work on new breaking, tending to loosen the dirt from the root masses. The roller should be followed by a peg-toothed harrow parallel with the furrow slices, the harrowing being done to loosen up enough dirt to fill the cracks between the furrow and to furnish dirt to allow the drill to cover the seed. A thoro diagonal harrowing will pay for istelf provided the harrow-teeth strike the furrow slices in such manner as not to turn them over and loosen them up. The seeding should then be done immediately after harrowing (not earlier than May 15th nor later than June 15th).

Run the drill crossways of the furrows. An attempt should be made to have the drill place the seed down between one-half and one inch; not deeper than one inch nor less than one-half inch. Before sowing careful attention should be given to the selection of the seed. Poor scaley diseased seed is what is ruining the crop of flax in North Dakota, and destroying the land for future flax purposes. Scaley and shriveled seeds are mostly caused by the wilt and canker diseases, and are sure signs of the presence of the wilt spores. I have never examined any northwestern grown flax seed that did not show wilt spores, no matter how plump and bright-colored. This is due to the fact that the disease is very general, and only a few sick plants produce an enormous number of spores which rattle off of the dead straws and stick to the seed.

Clean all seed thoroly so as to remove all sticks, dirt, chaff and scaley seeds. Then treat the seed with formaldehyde as described in our press bulletins 3, 14 and 23. It is absolutely essential in raising flax to thus treat or disinfect the seed. It is not difficult to do if the man who does it is provided with a proper compressed air sprayer so that he can throw a fine misty spray upon the grain while it is being shoveled and raked over. Use 1 pound of formaldehyde to each 40 gallons of water and approximately one-half gallon of the solution for each bushel of dry clean seed. If the grain is thoroly shoveled and raked while the spraying is being done the grain will be found to be evenly damp all over. If left piled for from one to two hours it will be thoroly fit to pass thru the drill without any difficulty.

If the farmers of the northwest wish to save the flax crop they must all follow out these processes of seed treatment, or some process yet to be learned, and if it is not followed there will be no flax crop worthy of the name in the northwest inside of the next ten years.

DETERIORATION IN WHEAT YIELDS

In August, 1909, after some nine years study upon the wheat crop of North Dakota and the Red River Valley I announced that the cause of deteriorated yields in the wheat crop of the northwest was not primarily due, as usually conceived, to a deteriorated nitrogen condition of the soil, but rather to the presence of numerous root rot and blight producing fungi which attacked the crop after the same manner as the wilt fungi attack the flax crop. I also called attention to the fact that the use of fresh barnyard manures containing straw from the diseased fields, when spread upon the land by the manure spreader is a very destructive process, rapidly scattering the wheat diseases to new lands and injuring those lands for wheat cropping. Numerous papers commented upon this information which was given out in Press Bulletin 33, and in some cases not very favorably.

Numerous experiments by culture methods in the green house, supplementing those of our field plots, are now so far completed as to furnish conclusive evidence that these first statements were well founded. Extensive pot experiments were planned in which 20 inches square of soil were used. The soil taken to fill these boxes was taken from old wheat lands which no longer raised any plump wheat and had had approximately forty continuous crops. In some cases the soil was treated with various chemical disinfectants, and in some cases sterilized under high steam pressure. Healthy seeds, modified hot water treated, planted in the sterilized beds, produced healthy, strong, heavy stooling plants with good roots and underground stems. The same seed planted in the old wheat lands which had not been sterilized produced feeble plants, the underground stems early evidencing decay, the cortex of their roots sluffing off. Shriveled seed, internally diseased, treated, produced diseased plants, even in well sterilized soils, but these grew much stronger than from the same seed untreated and planted in unsterilized soil. In this case young roots are stunted or killed almost as soon as formed and no stooling occurs.

The characteristics of the idseases are so definitely shown in the crop that photographs taken of the roots and stems plainly show the results of the experiment. All persons who have seen these experiments no longer question that the chief cause of deteriorated yield and shriveled seed in the old wheat lands of the Red River Valley is due to fungus infested lands and fungous infested, deteriorated seed.

These experiments, associated with numerous field observations and laboratory studies lay bare a real cause and a real reason for proper crop rotation and seed selection and treatment. They also prove conclusively why it is that formaldehyde treatment is always beneficial, even tho there is known to be no smutty wheat in the seed.

Bulletin 87, dealing with wheat and flax diseases in an educational manner, also discusses the subject of seed selection and seed treatment and shows the results of breeding for disease resistance in flax. The following quotations from page 163, of that bulletin deals with these root rots and blights of wheat:

"New studies conducted by this Department have demonstrated the fact that the wheat crops are quite commonly attacked by three or four types of minute fungi not heretofore recognized as definite wheat parasites. These parasites not only attack the wheat heads and grains but gain entrance to the interior of the grain and bring about blighting and shriveling, and also live over in the soil after the manner characteristic of flax-wilt and flax-canker fungi. It is therefore important that

seed treatment and rotation of crops be followed for exactly the same reason as given for the prevention of the diseases of flax. As the wheat crop is much more general in its distribution than flax it will be more difficult to gain as definite immediate results.

Treatment: (1) Obtain home grown seed of pure variety. (2) Select the brightest, plumpest, and heaviest type of berry possible. (3) Grade this grain by means of a heavy wind-blast, preferably vertical, in such manner as to eliminate the light weight, shriveled kernels. Treat the seed as recommended for smuts of wheat, either by the formaldehyde method or the modified hot-water method. As these diseases of wheat often attack the grains internally it is possible that some new method of seed treatment will yet supplant the ones now in common use, tho these are extremely efficient. (4) Sow the treated grain upon soil that has not lately been occupied by wheat. The rotation should be of such nature as to introduce one or more thoro cultivations of the soil, such as that necessary to develop a proper corn or potato crop. (5) In fertilizing with barnyard manures any land which is to be sown to wheat, use thoroly composted manure, that the diseases which are resident upon the wheat straw commonly used in animal bedding may be killed by the composting process."

The classification and description of the types of fungi which are the cause of these wheat diseases are in part given in the Annual Report of the North Dakota Experiment Station for 1909, and will be more fully given in a bulletin to be issued during the coming season.

The value of these facts rests in the new points of view regarding the well known desirability of proper crop rotation, seed selection and seed treatment.

AT THE AGRICULTURAL COLLEGE

By W. C. Palmer, Agr. Editor

J. H. Worst, President of the Agricultural College, has received an invitation from Governor Vessey of South Dakota to deliver an address at the Conservation and Development Congress which will meet at Pierre June 29th to July 1st.

The following members of the Y. M. C. A. have been elected to attend the Lake Geneva conference: Roy Dynes, Clarence Williams, Carl Yerrington and Clarence Walters.

The debators will this year be presented with a solid gold watch charm. Those to receive it are Olson, Traynor, and Tolwe.

J. C. McDowell of the U. S. Department of Agriculture, formerly of the A. C., recently made this station a visit He is carrying on some work in Minnesota and North Dakota and is at present on a tour of inspection.

There are fifteen who have completed courses in agriculture. Of these nine go back on the farm; two go to Sub-Station; three are to teach agriculture; one goes on the soil survey, and one into insurance. Three have completed the course in Civil Engineering; three the course in General Science; seven, Pharmacy course; four from the Economics Department; two, Steam Engineering.

On Wednesday June 8th President Worst made an address at the laying of the corner stone of the new school house at Jamestown.

The state educational milk and cream exhibit will be held at the state fair. Farmers and dairymen are urged to send in samples of milk and cream to compete for prizes. The milk will be scored as to flavor, sediment, butter fat, solids not fat, acidity, and package. The cream will be scored as to flavor, butter fat, acidity, and package. This will be in charge of Prof. G. L. Martin of the Agricultural College, Fargo, who will give further information to any one desiring it. He will also have charge of a dairy cow contest to be held at the same time. It will be a 48-hour contest on the largest production of butter fat. There will be a similar dairy cow contest at the Grand Forks fair, which will also be under the direction of Prof. Martin.

O. A. Hagen, one of the A. C. students, has charge of the creamery at St. Johns, N. D.

Prof. Waldron has landscaped the grounds at the Blind Asylum at Bathgate.

NEW DOMESTIC SCIENCE BUILDING

The most imposing building on the Agricultural College Campus is the new Domestic Science building. With its 165 feet of front, its three stories in height, its press brick exterior, its commanding location, all attract one's attention on approaching the grounds. It is named "Ceres" after the Goddess of Grains, of Abundant Harvests, of Plenty. The state is agricultural, the college takes up agriculture, and the girls are the daughters of agriculture, so could name be more appropriate? With our girls who are to be our wives and mothers trained in the science and art of home making, our portion will be a bounteous one in health, in happiness, in ideals, and in material good. The home is the foundation of any state and to have real homes, the home maker must be taught and trained to meet twentieth century conditions, which are very different from those of yesterday. Then again, we have today a large fund of information that can be used to meet these conditions that a few years ago did not exist.

On the first floor are located offices, dining room, kitchen, refrigerator room, food laboratories, laundry, family size kitchen, pautry and dining room, hospital room, lecture rooms, cloak room, etc. The dining room is located on the east side, is well lighted and commodius and will accommodate 400 at one time. The floor is hard maple and the wood work weathered oak. The tables are square and large enough for eight persons. Not only the girls that room in the building but any other students that so desire may board here. The kitchen is equipped in proportion and with the most up-to-date ranges, warming closet for plates, steam carving tables, large caldrons, tea and coffee urns, a large portable oven where the bread and cakes are baked, vegetable parers, meat slicers and every device which will save labor and increase efficiency. The refrigerator room is fitted up for taking care of meats, vegetables, butter, milk, etc. The laundry will be fitted out with the best appliances, a power driven washing machine, a steam dry room, a hot mangle, a sprinkler, electric irons, substantial ironing boards, stationary tubs, and in fact everything that makes an up-to-date laundry. There is also a class room laundry where instructions will be given in the best methods of washing clothes for the home, simple appliances being furnished so that the one who takes this course will know how to manage laundry work where it has to be done in the home.

The laboratories for giving instruction in food are being very completely equipped. The senior laboratory is supplied with individual electric and gas stoves, and a complete equipment of dishes and utensils. The tables are tile-topped as the tile is not affected by the chemicals that are used in testing food for adulterants, purity and for food value. In this laboratory the food is tested by the students to determine the chemical changes that heat produces. Here too experiments in cost of fuel will be undertaken. There will be exhibits of different food stuffs. Here also is given a course in invalid cookery; what to cook and how to cook it. The junior laboratory is fitted out with maple topped tables, and also with individual gas stoves, and the most approved utensils. The students not only learn

about food, their selection and preparation, but they have to select and prepare different kinds of food and learn how to use the most approved utensils and methods; thus learning to save work by the use of appliances and convenient arrangement. A third laboratory is equipped as a model for small village schools and it is intended to show what can be done for a small amount of money.

The hospital room is fitted out simple but sufficiently, and in a way that can be provided in a home in case of sickness. It will be in charge of a trained nurse who will give instruction in home nursing, hygiene and sanitation, so that in case of sickness in the home the student who has had his course will now know how to work to the best advantage to all concerned. The nurse will teach the girls how to apply bandages, to use clinic thermometer, to make a bed under a helpless patient, in fact how to handle the ordinary cases of the home. The value of such training is second only to the training which enables a woman to keep her family well by proper food and nutrition. Here too the girls may consult the nurse, who having been superintendent of nurses in a large hospital, is fully prepared and competent to advise.

The family sized kitchen, pantry and dining room are of special interest as here the students will be required to buy food, prepare it and serve meals, and to do it economically and according to the principles of good nutrition. This is intended to be self supporting. In a practical and economical way it will doubtless be one of the most important phases of the work, as it will not only give training in actual marketing but also in using left-overs. Four juniors will have it in charge for a month when it will be turned over to four other juniors and so on during the year. The kitchen will be provided with a coal and a gas stove. The table will be in the center of the floor, everything being arranged for convenience and for saving work.

The food lecture room will be provided with demonstration table, gas and electric stove and oven and the different utensils so that the processes involved and the methods of cooking and baking can be demonstrated while the lecture is going on. A stereopticon is also provided.

On the second floor are the sewing rooms, one for dressmaking and two others for general sewing. Tables and machines are provided. Instruction will be given in the selection of cloth, in the taking of measures, in the cutting of cloth and sewing it into garments. Here too is a comfortable rest room for the use of girls rooming away from the dormitory. The two rooms at the head of the stairs are set aside for the matron's use. In the southeast corner are three parlors. The rest of this floor is given up to rooms, which have been fitted up for the girls who live at the school. Each room will accommodate two. It has two windows, two closets, electric lights, two single beds, study table, dresser, chairs, book shelves, etc.

The third floor is given up to rooms for students, making fifty-five rooms in all.

The gymnasium, 42 feet by 66 feet, is located on the fourth floor. It is large and well lighted. The shower baths are in the room adjoining the gymnasium. The trunk room is also on this floor. The trunks and baggage will be taken into the basement and carried to the different floors by the elevator.

The building is finished in dark weathered oak. Thermostats are placed in all rooms so that a constant temperature will be provided automatically. A fan ventilation system driven by electric motors is installed. A good system of fire escapes has been provided with automatic fire alarms so that should a fire start, of which there is small probability, the opening of any window leading to a fire escape will ring the fire alarms all over the building. Fire drills will be under the direction of the physical training director, as this will reduce danger to a minimum. Three stand pipes have been installed as a fire protection. A vacuum cleaning system is built in and connections can be made on any floor and convenient to any room. Soft water is provided for those who desire it.

The outside of the building is faced with Hebron pressed brick. Hancock Bros., architects, drew up the plans, while T. F. Powers & Co. put up the structure. The Fargo Plumbing &

Heating Company have had the plumbing and lighting of the building. Mr. G. L. Tibert, Supt. of Construction, has looked after the building for the college, and Miss Jessie M. Hoover, Dean of Women and Prof. of Home Economics, has seen to having the building meet the needs of the young women. Together they have produced a building which is a monument to North Dakota's good judgment in providing so fine a home in which to train the girls who are to be the wives and mothers of North Dakota homes, the best guarantee of North Dakota's future.

Cropping Systems

By J. C. McDowell, Assistant Agriculturist, U. S. Department of Agriculture, Waukesha, Wis.

The Division of Farm Management is making a careful study of the work of the most successful farmers in North Dakota, and it may be of interest to the readers of the North Dakota Farmer if we occasionally publish in its columns brief accounts of some of this work. For some time our wide-awake farmers have been asking themselves if some simple rotation of crops would not bring in greater financial returns than the one crop system. As we travel over the state it is pleasing to note the interest that is started in the production of clover, alfalfa, corn, and potatoes. These crops are showing their effects in larger yields of wheat, and they are gradually bringing in livestock which will eventually solve many of our problems of soil fertility.

Recently I had the pleasure of visiting the country around Casselton, and of meeting some of the best farmers of Cass County. The soil around Casselton is a rich black loam, capable of giving heavy yields of practically any crop adapted to this climate. In this region is located the famous Dalrymple farm, and it is near here that H. A. Button, C. M. Taylor, and others are so successfully growing clover seed.

The Taylor farm consists of 320 acres of rich prairie soil, which is kept in a high state of cultivation. On this farm the livestock industry is not entirely neglected, but it is in the production of clover that Mr. Taylor is making such a marked success. He has now fairly settled on a four-year rotation consisting of clover and timothy the first year, and small grain the other three. It would perhaps be more profitable in the end to change to a five-year rotation, and follow the clover with corn, but this would mean more livestock, and consequently more labor.

The clover and timothy are seeded with spring wheat as a nurse crop, at the rate of 4 pounds of clover seed and 4 quarts of timothy seed per acre. The last year's seeding of clover is hardly thick enough, and it would perhaps be better to sow a little more clover seed, but it is surprising that we can get so good a stand of clover in this section with so little seed. On an adjoining field the clover was sown at the rate of 8 pounds per acre, and it is really thicker than is necessary. Around Larimore, 6 pounds of clover seed per acre is giving excellent results. The clover and timothy are both sown broadcast and covered lightly with a peg-tooth harrow. On the heavier soils of the Red River Valley care must be taken not to cover small seeds of any kind with too great a thickness of soil.

For the past four years Mr. Taylor has grown about seventy acres of medium red clover each year, and has taken a crop of hay and one of seed every year. The first crop, which is cut for hay, has given an average yield of two tons of good clover and timothy hay per acre, and the second crop has averaged about three bushels of clover seed per acre. The seed crop has been greatly increased by top dressing with manure as soon as the hay crop is removed. It has been found necessary to remove the hay early and to do it rapidly on account of the shortness of our summers. The idea seems to be prevalent that the seasons in North Dakota are too short for the double crop, and this may be true some years; but Mr. Taylor is not the only farmer who reports success in this line. In case hay is not wanted, it may be possible to increase the yield of clover seed by pasturing in the early part of the summer or by clipping back. In this case a heavy yield of seed should be obtained.

Up to the present, there has been no clover huller in this part of the country, and the clover seed has been thrashed in an ordinary thrashing machine at an estimated loss of thirty per cent of the seed. Mr. Taylor has recently ordered a clover huller, and judging from the amount of clover that is being seeded this year, there is going to be plenty of work to warrant the purchase of the machine.

The clover seed was all sold around home this year at the rate of ten dollars per bushel, which is quite a little above the market price. The market price, however, has kept close to eight dollars per bushel thruout the year, and at this price the seed would have brought in about twenty-four dollars per acre, and the hay crop would easily bring the value of the total crop for the year to forty dollars per acre. Counting the clover seed only, the crop compares well with almost any crop we can grow in this section, but it is not the money value of the clover crop that counts for the most after all. The high yields of wheat obtained during the three succeeding years show that the clover has left the soil in fine condition for small grain. The first year after clover and timothy, the wheat has given an average yield of about 26 bushels, the second year about 22, and the third year close to 18 bushels per acre, which makes an average of about 22 bushels per acre. As 10 bushels per acre will about pay expenses, including interest on the investment, this leaves a good net profit.

While timothy does not enrich the soil from the chemical standpoint, it adds considerably to the hay crop, and it forms a dense sod that keeps the soil from drifting during the years when it is in wheat. The humus formed from the clover and timothy roots and from the top dressing of manure, puts the soil in fine physical condition, and aids materially in conserving the moisture in dry years. Nearly every winter, Mr. Taylor feeds some steers on the place, and he is raising a number of colts. This enables him to feed much of the hay on the place, and by making the top dressing as thin as possible with the manure spreader, he is able to dot press a large part of the clover field.

With this system of cropping, the time will eventually come when the soil will run low in phosphoric acid, but for the present commercial fertilizers are probably not needed, and the feeding of the hay and some of the grain on the place will maintain a high degree of fertility for years to come. While this is true of the richer soils of the state, the farmer who has lighter soil will need to give closer attention to those systems of farming that are better adapted to the maintenance of soil fertility. The Dakotas are well adapted to the production of small grain, and as the selling of wheat, oats, and barley from the farm means the selling of large quantities of soil fertility, we must safeguard our soils in every way that we can.

Theoretically, the four year rotation discussed in this article is not ideal. but it appears to be a money maker, and it is away ahead in every way of the old system of growing wheat continuously, and it is some distance ahead of the system of summer fallowing every fourth year. We may not always find it possible to grow a crop of hay and a crop of seed, but we can certainly grow

one or the other, and it appears that we can at least get heavy yields of one or the other. For seed only, no timothy need be sown, but it will usually be found advisable to sow some timothy on account of its value in forming a sod. Timothy seed is not expensive, and there is no additional cost in labor when both are sown at the same time.

Agricultural College on Wheels

By Our Special Correspondent

The Northern Pacific "Better Farming" special marks an era in agricultural education. Railroads and Agricultural Colleges have cooperated before in running trains that have taken up some special topic, as good roads, better seed, dairying, etc. This is the first time that an attempt has been made to represent all the activities of the farm so that the train, as it progresses over the state, has carried the message to every member of the family. It has considered the home, the fields, the stock, protection for the home by planting trees, and books for the home.

The originators of this new kind of a train have been justified as large audiences have met the train and most of the towns made a regular holiday, decorating their towns with banners and flags and meeting the train with brass bands. The time spent at each town has been changed, instead of staying forty-five minutes or an hour the stops have been made from three to four hours. One hour has usually been spent in some hall where lectures have been given on subjects especially relating to that locality, and the rest of the time spent in going thru the cars and viewing the exhibits where the one in charge would be explaining and lecturing as the people pass thru. Where the crowds were not too large enough would be admitted to fill the car and hold a few minutes until a lecture or demonstration could be given when they would be allowed to pass on to the next car. In many places the attendance was so large that they had to be allowed to move freely from car to car in order to give all a chance to view the exhibits. Where the attendance was large those who could not gain admission to the cars were given an open air lecture.

Great interest was shown in the home economics car where there were exhibits of food and demonstrations as to the food value of different food products. There was the fireless cooker and the fireless baker that work while you sleep. There was the exhibit of mechanical appliances for the home, a model steam heating plant complete with boiler, radiators, pressure gauge, safety valve, which show what a simple thing the steam heating plant is. Another shows a hot water plant, another one illustrates how to wire electric bells and annunciators. Apparatus are shown for testing electric lights and different methods of using gas. These models are used in giving instruction to thes tudents in home economics at the Agricultural College, and they make it very plain as to how these things work and how they should be handled. The North Dakota farmer and his wife can afford all these conveniences and will be glad to have them.

It might also be said that there is a peculiar condition in North Dakota as well as in all the newer states, and that is this, that the people have come here from all sections, many of whom were not farmers and knew little or nothing about farming, yet such has been the fertility of the soil and the character of the climate that they have been able to raise big crops with the very crudest methods, but now as the price of land is increasing and as they are beginning to realize that there is a science of agriculture as well as of managing the home, they are anxious to learn. In fact, one often times hears the statement from the college and station workers that the North Dakota people are so ready to take up new methods that they have to be a little conservative about advocating them, whereas in the old states it is hard to get the farmers to adopt and put into practice the things that the stations work out.

This car also contains an exhibit of dresses and articles of that nature made by the students of the Agricultural College. This was a very instructive exhibit. Miss Hoover, who is in charge of this car, was kept busy from the time the car entered a town until it left. It seems that the interest in this line of work was unequalled and it certainly indicates that a good deal of attention needs to be given to it in the Farmers' Institute and Extension work.

This car also contains several traveling libraries. Dr. Max Batt, a member of the state library commission, explained that these libraries can be secured by any community free of charge and that they can be exchanged for new ones whenever they desire.

The exhibits of trees, fruit and ornamental shrubs also relate to the home. The trees to furnish protection, the fruit for food and the ornamental shrubs for beauty. Such trees as the elm, hackberry, birch, Colorado blue spruce, ash, bull pine were shown on the train and recommended as being valuable for North Dakota conditions. An interesting exhibit here was a box filled with soil in which were placed willow cuttings in the way they should be planted, that is at an angle so as to allow the soil to pack around them. Prof. Waldron was kept busy answering questions and giving information as to the best methods to plant and how to care for trees so as to secure the best results.

Supt. Hoverstad in his talk stated that grain growing had been the great industry of the state and that it would necessarily continue to be such, and that every effort should be put forth to increase the yields. In this connection it was interesting to note the explanations concerning them made by Prof. Bolley, who discovered the nature of flax wilt and presented measures against it. He stated that to guard against flax wilt it was necessary to sow only plump bright colored seed and to treat it with a formaldehyde solution. Shriveled or discolored seed would be apt to contain the spores of the disease, while the plump bright colored seed would contain none, but might have them on the outside where they could be killed by treating with a formaldehyde solution. He stated that there were also diseases of wheat a good deal similar to the flax wilt and that the way to keep them out was to sow only plump bright colored seed and treat it, in fact the process is a good deal the same for wheat as for flax. There was also an exhibit of the pure seed department in which were shown samples of weed seeds and also samples of different seeds containing weeds as they are bought on the market. Samples of weeds were also shown which will enable one to identify the weeds as they occur in the fields. In this same car were exhibits of corn and clover. The samples of corn were grown in North Dakota and many of those who saw them could scarcely believe that such large corn could be raised in this state. This is a very important fact as corn is one of the crops that is needed to make a good rotation in that it kills weeds, saves moisture and the cultivation given it seems to have a very good effect on the soil. Samples were also shown of clover and alfalfa with their roots, all preserved in a liquid solution so that the nodules were plainly shown. Attention was called to the fact that these two plants must have these nodules in order to do well. Diagrams were also shown how to lay out the farm into a series of plots the most advantageous for a rotation of crops. A great many questions were asked concerning this and several farmers were helped to lay out a rotation that would help to fit their farm and local conditions. A rack for drying corn proved of great interest. A box for testing seed corn, each ear by itself, was also shown. Professors Randlett and Doneghue were kept busy answering questions and giving in-

formation as to how to grow corn, clover and alfalfa. It is interesting in this connection to know the yield secured at the Dickinson Sub-station last year. Wheat went up to 42½, oats, 88½, potatoes 334½ bushels. This will give a good idea of the possibilities of this country and what can be accomplished by rotation, as these yields were all secured on land that had grown corn the year previous.

The second car in interest seemed to be the one containing the dairy exhibit which is certainly a very good indication of the fact that the North Dakota farmer is interested in something else besides grain farming. The silos were a great center of attraction and many slios will be built in the near future. The North Dakota farmer seemed to be very quick to recognize the value of the silo in handling stock. The milking machine was another object of great interest, as it removes the last barrier that has stood in the way of dairying. Labor is scarce in this state, and the farmers have gotten into the habit of doing everything with the machine and now that they can milk cows with a gasoline engine they will go into dairying with the same energy which they have put into their grain growing. The Babcock test scales, can washing machine and other articles of interest were included in this exhibit. Prof. Martin was kept busy lecturing and answering questions concerning the milking machine, the silo and the tester.

The interest in poultry is also growing, in fact quite a number are turning their attention to this as they are learning the peculiar fitness of the conditions in this state for this line of industry. Prof. Dynes has provided a model poultry house, incubator, brooders and a good many other things that are necessary for the poultrymen.

One car was devoted to farm machinery. The exhibit took up principally soil working machines, as plows, discs, harrows, drills, cultivators, corn planter, potato planter, and Mr. Brown gave demonstrations and talks on this exhibit. He devoted most of his time to the plow, which he considers one of hte most important tools, even if it is simple; in fact he brought out a great many points concerning its use and how to manage it so as to make it do the best work in the easiest way.

At the present writing the train has covered about two-thirds of its itinerary. Large audiences have been the rule. Lisbon, Maddock, Sheyenne, Sykeston and Goodrich have each had over a thousand visiting the train. Altogether the number who will take advantage of this opportunity will be very large. The railroad officials as well as the members of the Agricultural College and Farmers' Institute are very much gratified at the good results of this new plan of a demonstration train. It reaches all classes. It is enough out of the ordinary so that those who might not commonly attend a Farmers' Institute or take an interess in agricultural literature will come and learn that there is a great deal to farming and the bringing of the actual demonstrations within driving idstance of the farmer where he could view it and hear the demonstrations and explanations is going to prove of vast value not only for the information that he would get but from the fact that he learns that there is a science of agriculture, that there is a best way of doing things. In the words of Willard, Development Agen the words of Willard, Development Agent of the Road, "The Northern Pacific Railroad became the draymen to take the Agricultural College to the people as they wanted that the good work that was being done by the Agricultural College and the Farmers' Institute should be brought to the people and and they deemed that this would be the most expedient way for reaching a large number of farmers along their line." Judging from the satisfaction that all concerned seemed to have it will be to predict that other trains of the same nature will be run in the near future.

AMONG OUR ADVERTISERS.

THE AMERICAN WOMAN'S LEAGUE
By W. G. C.

On Thursday, Friday and Saturday, June 9th to 11th, was held at University City, Mo., the first annual convention of the American Woman's League. This convention, which numbered about 6,000 members, representing every state in the Union, was entertained by the Lewis Publishing Company, publisher of the Woman's National Daily.

The American Woman's League now consists of 75,000 members, and by the time this magazine reaches its readers the membership of the Founder's Chapter will probably have reached 100,000.

Associated with the American Woman's League are 107 magazines, of which the North Dakota Farmer is one. These 107 magazines have been designated as "Class A" publications. So hearty has been the support accorded this publication by the League members, that from nearly every state in the Union have subscriptions been received during the past few months.

It was the pleasure of the writer to be present at the convention held at University City. There we witnessed the largest press in the world turn out the National Daily at the rate of 8,000 copies per minute. There we examined the first building erected at a cost of $125,000 by the People's University, which is under the management of the American Woman's League. There we witnessed the most enthusiastic throng that was ever assembled in convention, and the devotion shown to Pres. E. G. Lewis, the founder of the American Woman's League.

We have implicit faith in the management of the League and its founder. We urge the readers of this paper to make inquiries regarding the A. W. L. and join the many enthusiastic North Dakotans who have already become members. Inquiries addressed to The American Woman's League, University City, Mo., will receive prompt attention.

In behalf of the Chapters of Kansas and of Jonesburg, Mo., Miss Mildred S. McFaden, in presenting to Mr. Lewis a loving cup, recited the following original poem, which expresses the attitude of the members of the League toward E. G. Lewis, its founder:

A DREAMER AND HIS DREAM
To E. G. Lewis

In Columbia's fairest valley,
Melted close against the heart
Of a busy, bustling city,
A proud commercial mart,
There springs another city,
Too beautiful it seems
For mortals to inhabit—
A city built of dreams.

Above that realm so sunny,
Bend skies of softest blue,
The landscape is resplendent
With erstwhile dreams come true.
And we fancy that one castle
Which stands so stately there
Had its being in the cloudrifts
"A castle in the air!"

The Dreamer still is dreaming
With vision rarified,
While muscle, brain and money
All rally to his side.
He calls—a million women
Respond all o'er the land,
For he plays on human heartstrings
With deft and master hand.

We catch the Dreamer's spirit,
And lo! before our eyes,
Behold an Eden garden,
Fair as fabled Paradise.
A city wrought by gentle hands
Reflecting highest good,
And o'er its shining portals
Read "American Womanhood."

Out from that city goes a light
That penetrates afar,
Illuminating hearts and homes
Like radiance from a star.
And multitudes, uplifted,
Their gratitude do prove,
By paying to the Dreamer,
The tribute of their love.

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COST OF LIVING

Of late a great deal is being said and written with regard to the cost of living and many causes are attributed as factors, some of which are true, many of which are apparently without much significance. There are a few factors, however, which cannot be overlooked.

The increased cost of production owing to the lack of sufficient labor has made articles of all kinds cost more than formerly. This is, therefore, one factor in the increased cost of living; and another is that there is no longer over-production in agricultural products. There are not enough farmers and laborers to supply the demands of our cities, which have grown more rapidly than has the country population. A more serious problem, however, is that of the middleman, a class wholly unnecessary, standing between the producer and the consumer, eating up a large share of the profits, and adding to the burdens of the consumer. When the American people weed out this class of parasites and bring the producer and the consumer closer together, we shall find a material difference in the cost of living.

Again, the tastes of the American people have become more expensive. They demand a better grade of products; they live beyond their incomes; and they spend large sums of money for things which they might easily do without.

Another important feature is that we have come to purchase products more largely in package form, failing to recognize that we are paying from two to four times the price that the same products would cost in bulk. True, packages are more convenient to handle, but they are expensive. Another feature which has had to do with the cost of living is the fact that a large share of the packages are short weight or measure; and we are, therefore, paying for much more than we receive and find it necessary to buy again additional quantities of food products which should have been included in the original package had it not been short weight.

All these and many others have been contributing factors in bringing about the increased cost of living.

STATE FAIR

The North Dakota State Fair is to be held at Fargo on the Fair Grounds July 25th-30th. It is to be hoped that as many farmers as possible interested in advanced agriculture in the state will make it a point to be present at this Fair. The opportunities for gathering information of educational character, which should be helpful to all the farmers of the state, are great and should not be neglected by those who would keep abreast of the best that there is in agriculture.

Every farmer who has exceptionally good farm products, grains, vegetables, etc., should make it a point to have them exhibited; and the best animals of the state should be exhibited. There are fine buildings and good equipment on the grounds for caring for all. It is the only meeting of the year that should draw the farmers together, when their influence should be made felt in the growth and development of the state so as to keep out all fake shows and influences which are demoralizing rather than up-building for the Fair.

The dairy industry of the state is but just beginning to develop, and every effort should be made to make this a strong feature of the Fair. For encouragement in this direction, in addition to the prizes that are given by the state, a solid silver cup has been offered by the Minneapolis Tribune for the highest scoring Creamery Butter to be shown at the exhibit.

DEMONSTRATION FARMS

The question has been frequently asked, What are the benefits to be derived from conducting demonstration farms as in North Dakota?

If one but turns to the reports of the Superintendent of Demonstration Farms as published in press bulletin No. 24, and notes that the work was begun in 1906 on six farms; six more were started in 1907; and eight more in 1909. The systematic rotation of crops begun on the 1906 farms are now manifest in the increase yield per acre. Bearing in mind that in 1909 the average yield of wheat was placed at 13.7 bushels per acre, let us see what the average yield was on the farms started in the different years.

Experiments Begun	Yield per Acre. bus.
1906 (six farms)	26.49
1907 (6 farms)	22.22
1909 (eight farms)	14.4

It will thus be seen that by a systematic rotation intended to improve the land and by better methods of cultivation, the six farms started in 1906 are now yielding an increase of 12.79 bushels over the average for the state; while those started in 1907 are now yielding 8.52 bushels; while the farms started in 1909 only average .7 bushels better than the average for the state. In other words, the farms which have been under crop rotation and better methods of cultivation since 1906 are yielding 12.09 bushels per acre more wheat than the farms which were put under the experiment in 1909.

If any further argument is needed as to the value of demonstration farms for showing the people of the different sections of the state what may be accomplished, it is to be found in this report. If the demonstration farms can but show the farmers of the state how to increase the crop five bushels per acre the profits to the people would be enormous.

Superintendent Porter says: "These yields are attained at no greater, and probably even at less cost, than that at which grain is now being produced."

CUTTING OUT MIDDLEMEN

Organization on the part of the farmers to bring their products more direct to the consumer is to be commended. Cutting out the middlemen is the first essential of success to the farmer and reduction of cost for the consumer. If between the producer and the consumer there are to stand from two to five middlemen, who must receive their income, who must be enabled to live in style and maintain a standing, then the prices paid to the farmer must be at the very lowest, while that paid by the consumer must be all that he will stand for. Cut out the middlemen and we shall hear less about the cost of living, and more with regard to the profits in agriculture.

AGRICULTURAL AND INDUSTRIAL EDUCATION

It is gratifying to observe of late the attention that is being given to the study of agricultural and household science in our common schools. It shows an awakening on the part of the people for more attention along these lines.

Pure Food Advertisers

The products advertised below are in compliance with the pure food law of North Dakota and of the highest grade. ASK YOUR GROCER FOR THEM.

We see the same tendency in our cities and larger towns in the direction of industrial education. Shop work and domestic science have come to be important factors in the training of our city schools, and it means much for the advancement of the young men and young women who must soon take their places in the industrial world.

There is pending before Congress, at the present time, a bill intending to appropriate for the advancement of strictly agricultural high schools thruout the country which will carry an appropriation of $4,000,000; also an appropriatiou of $1,000,000 for the support of branch experiment stations. The bill also carries an appropriation of $5,000,000 for industrial schools for our cities and larger towns.

This measure should have the support of all our people. And an effort should be made to secure the enactment of the bill into a law as early as possible, for the benefit of vocational education.

LAND DYSPEPSIA

Under the title of Land Dyspepsia, H. J. Hughes, formerly of the A. C., in the American Thersherman deals with the subject of Land Hunger of the present day by the American people:

In connection with the question of crop production and the supposed limitations of the soils as food for man, he points out some interesting facts, especially with regard to the wheat crop, corn crop, etc.

It is interesting to note that, as he says: "The biggest wheat field we ever had was in 1901, and came a trifle short of 50,000,000 acres."

In other words, the amount of land in the United States devoted to growing wheat would be a little less than the area of the state of Kansas. He further says: "That on the average we are growing less than half the yield per acre than should be grown on this land."

In other words: if we were growing the crop which we should grow at this time, and could grow, one-half the state of Kansas would supply the wheat fields and produce all the wheat grown in the United States at the present time.

Our corn crop, distinctly the American agriculture product, is grown upon apaprximately 102,000,000 acres of land, or 160,000 square miles.

In other words, the three corn states, Illinois, Iowa and Missouri contain 20,000 square miles more than would suffice for the growing of the entire American corn crop.

While the cotton crop of the south is grown upon an area of 51,000 square miles, or approximately 33,000,000 acres, Alabama has 51,540 square miles within her borders. And still, as he says, "We are only growing one-half a bale of cotton per acre, which is less than half a crop."

Minnesota has enough land to embrace all the meadow for hay production of our entire country, while Connecticut furnishes an acreage for all the potatoes needed by the people, again the land devoted to the growing of oats is less in area than the state of New York, and New Jersey has an acreage twice that used in growing our rye.

All the oats, barley, rice, beans, garden truck, cane, sugar beets, flax fields, etc., could be placed in the state of Oklahoma and still have a large area left.

The solution requires, therefore, that before we reach the maximum production of our land's capacity, better methods of agriculture and better methods of cultivation are essential. Then we shall find that with the increased demand for farm products we will find that upon the acreage now in cultivation we may produce twice or thrice what we now have.

When the land has all been taken up, we shall then turn back to the half cultivated farms and find that it is on these that the greatess amount of income can be produced in the years to come.

COST OF LIVING

In connection with the discussions now taking place with regard to the cost of living it is interesting to note, that in accordance with the reports of the Bureau of Commerce and Labor, in 1910 there were five million less food animals in the United States than in 1901, while the population is twelve million greater.

The term food animals includes cattle, sheep and swine.

In other words, in 1901 for each person in the country there were 2.31 food animals, while in 1910 there were but 1.93 food animals per capita, a decrease approvimately of 16%. Nevertheless the total value of animals has shown a marked increase during this period.

In 1901 the total value of food animals amounted to $1,943,000, while in 1910 with approximately 5,000,000 less food animals the value is placed at $2,368,000.

Let us see wherein the decrease of 5,000,000 animals comes. We have as follows:

	1901
Cattle	62,333,333
Sheep	59,750,000
Swine	57,000,000
Approximate Total	179,000,000
	1910
Cattle	69,000,000
Sheep	57,250,000
Swine	47,750,000
Total	174,000,000

There has, therefore, been an increase of approximately 1190 in cattle; while there has been on the other hand, a noticeable decrease in the number of sheep and a marked decrease in the number of swine.

With the increase in population and the decrease in food animals, and the increase in the cost of production at the present time, it is clearly evident that there must be an increase in the price of this class of products.

GLANDERED HORSES

Could you tell me thru your paper what the law of the state is in regard to the examination and destroying of glandered horses?

Bowdish, N. D. G. S.

The act of the Legislature with regard to indemnifying owners for animals killed or destroyed is as follows:

Section I. Appraisal of Animals. Whenever the state veterinarian shall deem the slaughter of a horse, gelding, mare, ass, or mule necessary under Section 2000 of the Political Code of 1905, he shall notify in writing a justice of the peace of the county in which said diseased animals are, describing in said notice the diseased animals with a reasonable degree of certainty, stating the name of the owner when known. The said justice of the peace shall after entering the same upon his docket summon three disinterested citizens as witnesses are summoned in justice court who shall not be residents of the immediate neighborhood in which the animals are owned and kept. The said appraisers shall before entering upon the discharge of their duties be sworn to make a true and faithful appraisement of the value of said animals without prejudice or favor. And said appraisers shall certify in their return that they have made said appraisement and have seen said animal or animals destroyed. And in making the appraisement the value put upon the animal or animals shall be what they would have been worth had they not been affected with glanders, provided, however, that in no case shall the appraised value of any one animal exceed one hundred dollars to be paid by the state as hereinafter provided.

Section 2. Compensation for Animals Killed. Claims against the state arising from the slaughter of animals as herein provided shall be made by filing with the state auditor a copy of the state veterinarian's notice to the justice of the peace and return with affidavits from the owner that the animal has been buried in accordance with Section 2001 of the political code of 1905 which notice and return shall be certified to by the justice of the peace on whose docket they are recorded. The state auditor shall examine the same and if found correct he shall issue a warrant on the state

treasurer for one-half of the sum named in the appraiser's return.

Section 3. The justice of the peace before whom any such proceeding shall be conducted shall enter upon his docket a record of all such proceedings and shall allow and tax all costs of justice officers, appraisers, and witnesses the same as in other cases. The said appraisers shall be entitled at the rate of two dollars per day or parts thereof, which costs and fees shall be certified by him to the board of county commissioners and shall be audited and paid out of the general county fund, the same as costs in criminal actions before justices of the peace.

Section 4. Payment, When not Made. The right to indemnify shall not exist and payment shall not be made in the following cases: First, for animals belonging to the United States, or any city, county, township, or village in the state; second, when the owner or claimant at the time of coming into possession of the animal knew it to be diseased; third, for animals found to have been diseased at the time of their arrival in this state; fourth, animals that are brought into the state to do contract work; fifth, when the owner or claimant is a non-resident; sixth, when the animal at the time of its destruction had been in the state less than six months; seventh, or when the owner shall have been guilty of negligence by willfully exposing his animals to the influence of infectious or contagious surroundings.

Livestock Department

PROF. W. B. RICHARDS, Editor

VETERINARY BUILDING

The new veterinary building of the North Dakota Agricultural College, which was completed in February, is one of the most important buildings on the campus. A college course in veterinary science is given; analyses are made for the Sanitary Live Stock Board; information is sent out to the farmers of the state as requested; the newer and less well understood diseases are being studied, and sera prepared and sent out as needed.

The building is made of Hebron pressed brick and finished inside in golden oak and with maple floors. There are really three buildings which are connected by covered passage-ways. These passages have been made wide; so that one side of one can be used for temporary stalls for animals that are wanted for the demonstration arena, but not wanted in the stable, and another has small rooms on the sides for a laboratory and also for small animals as rabbits and mice and other animals that may be used in demonstration work. The third one has a wash-room and lockers and leads to the dissecting room. Still another portion is used for a killing room for animals that are to be used in some of the demonstrations so that use is made of every available space.

The main part is two stories in height. On the first floor to the right, as one enters, is the clinical amphitheater, which has a seating capacity of 150, and is provided with a fine operating table on which horses and cattle as well as smaller animals can be handled. It is used largely for the students in the Agricultural Department who are given several terms' work in veterinary science. The amphitheater is reached by the students from the landing half way up the stairs; while in connection with the central hall is an entrance for the operating staff, and with another passage way it connects with the stalls and also with the outside thru which animals used for the demonstration of unsoundness are brought before the classes. The operating arena is constructed of cement, has good drainage, and every precaution is taken for cleanliness and sanitation. The arrangement for the seats leaves considerable space below.

On the left side of the hall entrance there is a wash and cloak room, while on the right and space is used for the storage of surgical instruments used in the operating room. It is also used as a sterilizing room and for holding different supplies that are needed during operations. It has a hood, to take up all odors, which connects with the general ventilating system.

To the left of the central hall there is a class room with a seating capacity of 72. It has a high ceiling, is well ventilated, has glass cases for holding the bones, specimens, and models used in instructional work. It is provided with a demonstration table, with gas and water and plenty of blackboard space. The walls are covered with charts and diagrams used in teacihng. It is in communication with a model room in which are stored models and specimens which form part of the teaching appliances. This room also communicates with the central hall.

The second floor also has a central hall, one end of which is portioned off and forms an office for the assistant professors. The back part is used for wash-room for the teaching and laboratory staff. At the head of the stairs to the right is the entrance to the laboratory for comparative physiology, which is equipped with glass cases for apparatus and supplies, laboratory bench with gas and water, space for a mechanical refrigerator for the storage of sera and other bacterial supplies. The laboratory communicates with a lecture room known as the small class room; seating capacity 60. It is provided with a demonstration table; gas and water, and drawers for the storage of supplies and stationery.

The architecture of the building is plain; in the words of Dr. Van Es, "The aim of the department was to put the funds into the things actually needed instead of architectural beauty," yet the building is very pleasing in appearance, and certainly meets the needs of the department admirably. This building has been set back from the drive way so that when necessary to enlarge there will be place for putting an addition on the front. The work of the department is growing and as it does, more space and facilities will need to be provided for.

GRAND 5-YEAR OFFER, PAGE 20

GOOD DAIRY STOCK

The reason why more farmers are not finding dairying as profitable as it can easily be made is because they do not pay close enough attention to the business end of it. They are not building up good herds. They are making too much use of beef bulls rather than of dairy-bred sires. It is practically impossible for the average farmer to buy high producing cows to start with. The only way he can get a profitable herd is to raise one from the cows on hand, or from a few good ones that he may be able to buy. In doing this he should pay special attention to the bull end of his herd. A poor bull is expensive to the dairyman at any price. The old saying that the bull is half the herd is quite true; in fact, it rather understates than overstates actual conditions. This statement, however, should not be construed to mean that the sire has greater influence upon the offspring than the dam, as such is not the case, except where the dam is of mixed or uncertain breeding and the sire has been bred in one line for many generations, so that his characteristics have become fixed and he has become what is termed very prepotent. The statement is true only in-so-far as the sire has greater opportunity to reproduce himself than any individual cow in the herd.

The value of the sire in building up a good dairy herd was well put by A. L. Wheeler, President of the Indiana Jersey Cattle Club, when he addressed the members of that club in February of this year and stated, "It is very poor economy to buy a cheap bull, even to start with." By this Mr. Wheeler meant that no matter how poor the cows in a given herd, so far as milk producing capacity is concerned, it will pay and pay well to buy the best bull that can be obtained. This does not mean that a fancy price should be paid, but it does mean that no farmer who wishes to make dairying a specialty, or who depends largely upon the receipts from his cows for his cash income, should ever introduce a bull into his herd that does not come from very high milk producing ancestry. True the individuality of the bull must be good, but in selecting a bull for a herd of dairy cows, see to it that his pedigree is also good. Make sure that his dam and granddam were good milkers before you permit him to go into your herd. While we would not place pedigree ahead of individuality, neither would we give it second place, for the truth of "like produces like" is too well established to take chances with a bull whose dam and granddam were poor milkers.

Altho there are many farmers who are turning their attention to the dairy cow at present, there is no immediate danger of over-production of dairy products. The cow is an economical producer of food, a fact that has frequently been brought out in these columns. The fact of the matter is that she is the most economical producer of animal food on the farm. Another fact is equally certain, and that is that the public has not yet learned to realize the value of milk and cheese as food products, and yet even at seven cents a quart, milk is a much cheaper food than porterhouse steak at 20 cents a pound. A quart of milk contains as much nutriment as a pound of the best steak on the market. With all food products high in price, as they now are, and as they will continue to be for many years to come, the public will gradually learn that milk is not primarily a beverage, but a food product of very high quality. As this becomes better known, the demand for milk will increase, and this is one of the main reasons why we feel confident that there will be no over-production of dairy products in this country for the next half century.—Farmers' Tribune.

3 PAIRS SHEARS FREE, PAGE 31

CLASSIFIED ADS.

LIVE STOCK

HORSES

FOR SALE
Percheron, Belgian and Shire horses
J. W. & F. T. PETERSON, Litchfield, Minn

MEADOWBROOK STOCK FARM. Clydesdales and Shetland Ponies, imported and home bred. Prices reasonable and terms to suit. Write or come and see me. GEORGE LANG, Mapleton, Minn.

CATTLE

North Branch Stock Farm. High class Shorthorns. Herd, bull, Supreme Judge 177722—pure Scotch, John Donelly, Grafton, N. D.

REGISTERED RED POLLED CATTLE
Young Stock of Both Sexes For Sale.
C. G. FAIT & SON, Monango, N. D.

FOR SALE: A fine purebred registered Holstein-Friesian bull one and one half year old, of the famous DeKol and Pietertje families, the best dairy breed in the world.
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FOR SALE
GALLOWAY CATTLE
J. W. & F. T. PETERSON, Litchfield, Minn

SWINE

POLAND CHINA PIGS, also Shropshire sheep. Seed grain. GEO. N. SMITH, Amenia, N. D.

EGGS AND POULTRY

EGGS FOR HATCHING, Express prepaid, $2 per 15, from pure bred Golden Wyandottes and White Plymouth Rocks (Fishels strain.) Wyandotte stock for sale. Send for Catalog. C. H. McGEE, McHenry, N. D.

MISCELLANEOUS

Envilla Stock Farm, Cogswell N. D. will quote you special prices on Angus Cattle, Shetland Ponies, Duroc Jersey Hogs, Wolf and Fox Hounds, Fancy Poultry, Pet Stock and Ferrets.

FAIRVIEW STOCK FARM. Breeder of Short Horn Cattle, Mammoth Bronze Turkeys and B. P. Rock Chickens. Young Stock for Sale.
F. R. HAMMOND, Prop., Bismarck, N. D.

FOR SALE Six farms, joining, 6 miles from Bowbells, will be cheap. Write for particulars.
The Lyon Land and Loan Co., Bowbells, N. D.

WHY CREAM TESTS VARY

Apparent Errors May be Traced to Several Common Causes

Variation in tests has caused much dissatisfaction in the selling of cream. When the cream is from the same cows, which have been fed the same ration and milked by the same man, and when the same separator is used, the farmer naturally thinks the per cent of fat in the cream should remain the same.

Errors are often made in making tests, especially in taking the sample, but variations constantly occur that are due to other causes. The most common causes of these variations, as pointed out in a circular, No. 37, by Prof. C. H. Eckles, of the Missouri Agricultural Experiment Station, Columbia, Mo., are as follows:

1. Variations in the speed of the separator.
2. Variation in temperature of milk separated.
3. Rate the milk flows into the machine.
4. Amount of water or skim milk used in flushing out the bowl.
5. Change in the richness of the milk separated.
6. Adjustment of the cream screw.

Change in the speed of the separator is the most common cause of variation. The greater the speed of the separator, the smaller the amount of cream and the higher the per cent of fat.

Again, the temperature of the milk separated varies on the farm from day to day. If cream tests 30 per cent when the milk is separated at 90 degrees, it may test as high as 40% when separated at 70 degrees. Under average conditions on the farm, however, the variation in fat due to change of temperature will not amount to more than 3 or 4 per cent.

A third cause of variation is found in the rate at which the milk flows into the machine. If less than the regular quantity flows into the bowl, the tendency is to increase the per cent of fat in the cream.

The richness of the milk separated affects the richness but not the quantity of cream. The richness of a cow's milk depends on inheritance and can not be changed permanently by feed.

Small variations are likely to occur from the other causes suggested by Prof. Eckles. By the use of an ordinary Babcock testing machine and by measuring the sample of cream into the test bottle with the same pipette as is used for measuring milk, any farmer can make a test of his cream that will satisfy him as to the accuracy of the test he receives from the cream buyer.

OUR AWL OFFER TAKES, PAGE 2

ST. PAUL UNION STOCKYARDS REPORT FOR MAY

Comparison of Receipts and Shipts of Livestock

Receipts

Railroads	Cattle	Calves	Hogs	Sheep	Horses	Total Cars
C. R. I. & P....	321	46	1233	204	19	35
C. G. W.....	882	723	3540	1259	3	105
C. M. & St.P.	3705	1369	13078	704	161	351
M. & St. L.	1270	600	9673	327	1	203
C. St. P. M.&O	1689	841	12496	753	12	267
C. B. Q.....	333	133	965	120	.....	29
M.St.P.&S.S.M	2975	2772	7367	958	4	235
Gt. Nor.....	4744	4150	15588	1235	76	427
Nor. Pac.....	3435	1588	3817	3278	325	215
St. P. B. & T..	.....	.....	.....	.....	.....	.....
Driven In.....	1037	119	964	221	1	.....
Total.....	20391	12341	68721	9059	602	1867
Increase.....	930	3814	7157	1748	284	294
Decrease.....	.....	.....	.....	.....	.....	.....
Jan. 1 to date	106562	37632	300242	130835	2580	9123
Increase.....	.....	7605	.....	22892	859	.....
Decrease.....	4642	.....	79434	.....	.....	118
Average Wts.	844	138	241	87	.....	.....

Shipments

						W
C. R. I. & P....	806	374	.....	.....	.....	28
C. G. W.....	2462	563	4869	131	28	138
C. M. & St. P..	3148	375	.....	48	89	114
M. & St. L.....	121	9	.....	.....	.....	4
C. St. P.M. & O	1958	1950	54	161	45	103
C. B. & Q.	1452	57	7267	1847	221	131
M.St.P.& S.S.M	1128	55	144	.....	58	44
Gt. Nor.....	186	62	35	109	25	13
Nor. Pac.....	492	22110	.....	.....	2380	1
Total.....	12365	3906	12488	2457	680	606
Decrease.....	1567	388	.....	194	.....	.....
Decrease.....	1567	388	.....	194	.....	.....
Jan. 1 to date	63845	12501	55989	81664	2869	3207
Increase.....	.....	7605	.....	22892	859	.....
Increase.....	.....	.....	3520	.....	319	6
Decrease.....	1567	388	.....	194	.....	.....
Jan. 1 to date	63845	12501	55989	81664	2869	3207
Increase.....	.....	320	.....	14723	1094	.....
Decrease.....	12389	.....	29995	.....	.....	.....

Comparison of the Origin and Disposition of Livestock

Origin of Live stock Received

States	Cattle	Calves	Hogs	Hogs	Sheep	Total Cars
Minnesota.....	13396	10156	50332	4981	74	1281
Wisconsin	1345	1466	4025	896	52	131
Iowa	.....	.....	56	.....	28	4
Far South.....	.....	.....	.....	319	.....	2
So. Dakota....	1029	181	8063	366	1	155
No. Dakota....	3126	493	6221	2497	.....	214
Montana.....	1469	45	24	.....	330	75
Far West.....	.....	.....	.....	.....	117	4
Manitoba &NWT.....	.....	.....	.....	.....	.....	.....
Far East.....	.....	.....	.....	.....	.....	.....
Returned.....	26	.....	.....	.....	.....	1
Totals.....	20391	12341	68721	9059	602	1867

Disposition of Live Stock

So. St.P. Pkrs.	7209	9304	56381	7520	.....	.....
City&State Butch	614	294	119	.....	.....	2
Outside Pckrs	247	1044	11964	48	1	153
Minnesota.....	2174	646	134	270	181	79
Wisconsini	1664	140	99	.....	157	69
Iowa.....	2548	1110	.....	.....	.....	93
Nebraska.....	424	120	.....	.....	.....	12
Kans.& Missouri.....	.....	.....	.....	.....	.....	.....
So. Dakota....	307	57	.....	.....	.....	10
No. Dakota....	231	19	.....	.....	74	12
Mont. & West.	25	4	.....	.....	44	3

FEEDING THE CHICKS

By Mrs. B. F. Wilcoxen

A friend of mine bought 500 chicks and lost every one of them thru carelessness. A neighbor, who was very successful in artifically hatching (that is in getting large numbers) had four hatches and had one hatch out before any one had begun to think about setting their incubators, but they fell down and in rearing them lost every hatch. I suggested a method of feeding, but no, they had done everything that could be done. It was just a sickness among the chicks, as they termed it. So it goes, people lay the blame just where it does not belong. They never want to take any of it.

When a chick comes from the shell its first need is warmth. The prevalent idea is that not more than 100 chicks could be kept in a brooder and that 75 or even 50 would be better.

In visiting large poultry plants I have found as high as 1000 in a bunch—a heater being placed in the center of a brooder house warming the whole room. I have been most successful when I furnished scratching material. I heard of a poultryman who darkened his brooder house because the chicks had gotten to pick one anothers toes. I have seen chickens tear one another to pieces. Better far than darken the room, would have been to hang up a few pieces of boiled liver for the chicks to pick at. An occasional feed of meat for the chicks has a tendency to prevent long wings. What to feed is to many a problem, when to feed and how to feed the same.

The properly hatched chick has before leaving the shell enclosed within its abdomen the yolk of the egg that remains and is thus provided with food sufficient for all meals during several days. This is the food that nature has has provided, if fed too soon or too much this yolk becomes decomposed and the result is death.

After chicks are hatched they should have no food given them for 48 or better 70 hours. Pure water and grit can be placed before them after they are hatched so they can drink at will. This is their fare for the first three days. If

Far South.....	.....	.....	.....	.....	.....	.....
Manitoba&NWT.	a 2	.....	.....	.....	3	1
Mich. & E. Can	382	3	.....	.....	.....	12
Chicago.	1069	80	172	1978	.....	60
Ills.(ex Chicago)	2145	214	.....	161	.....	73
Eastern Points	507	175	.....	.....	 220	26
Returned.....	26	.....	.....	.....	.....	1
Totals.....	12365	3906	12488	2457	680	606

you are not satisfied as to the cause of death among your chicks make a personal examination. Open them and make a study of this matter of yolk absorption a great many start chicks on milk. Chilling the chicks is one of the most fruitful causes of diarrhoea and other digestive disorders. If there is one connidtion more essential than another it is uniform, temperature among the chicks. A great many are quite successful with home-made brooders containing no artificial heat. The body heat of the chicks is sufficient. I think the real cause of chickens dying is because they are not properly cared for and they cannot be properly cared for unless we have the right system of brooding. I have often taken a dry goods box about one foot high and placed glass on the top and used it as a sort of a sun room for the small chicks. With regard to feeding, about the best thing to start them on is some good chick food that is already mixed, thrown in a litter. One of the first essentials is green food. Some people object to warm feed saying that it is not according to nature. It is not according to nature to hatch chicks artificially but still it is quite successfully done. When chicks begin to feather out I feed boiled wheat. I have known many to be successful in feeding the young chicks boiled oatmeal. I have known many to bring a flock of pullets to maturity on soaked barley.

There are times when poultry raisers have splendid success both in hatching and raising the chicks, then again with seemingly the same care and under the same circumstances half of the chicks would die. A city lady who moved on a farm said to me, "Well, I never before had any experience with chickens but I always thought that you fed a little of this and a little of that." Each one has his own ideas of rearing chicks. She was preparing onions and lettuce for dinner, so I told her that onion tops, lettuce and cabbage leaves were excellant to feed the chicks. "Well," she said, "who would of thought of that.

Alfalfa leaves are a good substitute for fresh grass. I wish to emphasize the value of alfalfa in feeding poultry of all kinds. Alfalfa has made friends for itself in the west and southwest. It is rich in protein; nearly every poultry raiser in Colorado feeds large quantities of alfalfa meal. It is a great feed for laying hens and growing chicks. The meal when slightly moistened turns a vivid green and smells like new mown hay. When fed to hens it provides every material needed in making eggs, the eggs being very fertile.

In poultry raising we should keep records. Records of production, eggs, meat, feed and breeding, also showing yard records. The object that we have in view in raising poultry is production. It is important to keep records as they are a guide—they help us to know what we are able to do. They show what can be accomplished in raising poultry. If our records show that for several years our flock has been valuable, large producers of eggs, is not this record valuable?

Perhaps records show that the flock have done nothing worthy of note. Is it worth anything? The saying is that "Like begets like." If we have a flock that produces large numbers of eggs. we can expect their offspring to be good egg producers. We all know that an intelligent poultry raiser will not feed and care for his poultry everyday in the year for nothing, but so many are feeding away their profits. (It can be done in so many ways that only an experienced or cautious feeder can avoid the pitfall.) Why? It is because they don't know that they are doing it and there is no way to find out that they are doing it because they keep no records. Many will say, how am I to know? Use trap nests.

I know that there are many flocks of poultry making a handsome profit. We find hens in the same flock, under the same conditions being fed the same kinds of feed. One is making a profit and the other a loss. In flocks we often find one hen laying as high as 200 eggs in a year and another hen laving as low as 50 eggs. Why do people keep the poor layers, is it because they won't or don't they know any better? I think it is because they don't realize the difference between a good hen and a poor hen and they won't ever find out until keep they records.

You not only keep these poor layers but you save the chicks from these poor layers year after year. I know of one instance where a man's original flock was eleven years old, still he would cling to them. They were just a mixture. Why not make a change for the better?

Of course it takes time to keep records but by so doing we see where we have lost time and money by not keeping records. Have you ever attended a sale of fine dairy cows and heard the record read of each cow? Keep account of feed, money obtained for eggs, etc. for one year and divide it by the number of hens and see what the returns for each hen is. Did the results pay for the cost of the feed; if not, why? Get rid of the poor layers and keep the good ones. We should keep a feed record.

If the fowls have a good range—a range covered with grass—they will gather at least one-third of their living during the growing season. All this is clear profit. For every day that one holds and feeds a marketable fowl he must deduct the cost of that day's feed from the market price. When this is done one will be surprised at the rapidity with which his profits shrink especially if his feeding is expensive. I know of a great many people who raise poultry and have not made a cent of profit.

We realize that the hen which makes us $3.50 worth of eggs and consumes only $1.00 worth of feed is more valuable to us than another hen that produces the same amount of eggs and does it on a larger amount of feed. By intelligent feeding we do not overfeed nor underfeed, but give the hen that which she should have to stimulate her to do the greatest amount of work that she is capable of doing. A great many hens are capable of making large records that have been neglected. They are not fed and cared for and led up to the point where it was possible to develop them and make records that have been made by other hens.

By keeping breeding records we know whether the offsprings are as good as their parents, if not, dispose of them. The majority of poultry breeders obtain their money by the egg and meat production.

I know there is something to be gained by breeding for the show-room. The breeder has become known far and wide and he has gained advertisement because his birds have been shown in their best form to poultry loevrs.

THE POULTRY YARD

Let other folks do the fancy poultry business. You stick to practical work.

Keep the brooder perfectly clean, and always feed the chicks in a clean place if you want them to live and thrive.

The baby ducks are just as well off, in fact better, without water to swim in until they have grown their crop of feathers.

Bits of meat carried out with brine from the barrel and left on the ground will give hens serious bowel trouble. Don't risk it.

Keep your hens from straying over on the land of your neighbor. Be particular about this if he has any crop growing there.

In the northern latitudes May is the last month when hens should be set. Chicks hatched after that will be too late for laying next fall.

Give the houses a good cleaning, and plow or spade up the yards. Dirty houses breed vermin, and polluted soils are incubators for the gape worm.

Give the turkey hen and her brood a coop large enough for the mother to move about and stand erect in, and you won't be so apt to have bad luck.

Guinea fowls will now be laying, and a watch must be kept on their nests, as it is their nature to hide them. The eggs had better be hatched by hens.

It's annoying, perhaps, just about supper time, to have to stop to wash dirty eggs when the hen breaks one, but this is a task that must not be put off until to-morrow.

If fowls must run at large on range over a farm, by all means keep one breed, and give them all the time, knowledge and attention possible. You will have something of which you may be proud, and that will profit you financially as well.

Because hens are out on the land now do not therefore think they do not need shells and such things. They may not be able to find a bit of that kind of food in all their travels. A shortage here is apt to mean a shortage in eggs with good shells on them.

This is the month that gapes are more or less prevalent on heavy soils. Chicks should not be brooded on the same ground that was accorded to chicks afflicted with the disease last year. Place them on ground that was never before used by poultry.

When hens begin to lay soft-shelled eggs it is time to ask yourself, "Where am I failing to give them the food they need?" Don't be satisfied until you can answer that question. Almost always it is due to a lack of shell-making material.

Wheat bran, crushed egg-shells, cut bone, broken mortar and oyster-shells are fine for making eggs with good solid shells.—Farm Journal.

IS THERE A MISTAKE HERE?

Guy E. Mitchell, Washington, D. C.

Has the raiser of incubator chicks been making an error in using a brooder heated either with hot water or hot air? This is a serious question on a most serious subject. Why the subject is broached at this time is because developments at some of the experiment stations with the cold brooder, seem to show that a mistake has been made. As a matter of fact a number of raisers of broilers here in the vicinity of Washington have adopted the cold brooder with success where for years previous they met with failure at the hands of the artificially heated brooder.

Near Herndon, Virginia, is a broiler raiser who is producing broilers of two pounds in nine weeks, for which he receives 60 cents each from the Washington hotels, and not one of these chicks hatched in an incubator ever had a warm day in its life under a hot air or hot water brooder. The "mother" for the chicks is nothing more than a box about eighteen inches square and nine inches high. The box has neither top nor bottom, altho the top is covered loosely with canton flannel. Over this is laid either a pillow of the same stuff filled with raw cotton or straw or hay may be piled thereon to a thickness of six or eight inches. Of course there is a small opening in one side of the box to permit the chicks to neter. A dainty little nest is made in this brooder, and when 40 or 50 little birds assemble there, there is enough animal heat to keep all of them comfortable, even during mid-winter.

But then the question is asked, where do you put the cold brooder? Out of doors—yes, out of doors in the coldest of weather, of course confining the run of the little ones to a tight-jointed runway 3x6 feet, placed right on the ground. Half of the bottom of this runway is boarded and covered with chaff, while the other half is on the ground where the chicks may scratch and dig to their hearts' content. The top of the runway has two covers. One of muslin and another of some water proof material. During nice weather the rain proof is removed to allow the sun light in.

This whole plan is a revolution of the old idea to keep the chicks warm. The writer has seen young White Plymouth Rocks during the last week in March of last year, which were put out of doors when only 24-hours old, on March 4,—the day when Washington was cut off from the rest of the world by reason of the worst blizzard of the year—the self-same day on which President Taft was inaugurated. And yet every one of the little birds was lively as a cricket and fully feathered out. What is the mortality under this system? Slight. So slight as to make one gasp. Inquiry

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was made of the Virginia raiser on this point and he remarked that of 600 chicks hatched and placed out of doors in March, only 14 died, and this on account of general weakness of their constitutions, and not the weakness of the system.

The cold brooder proposition is one that is being studied extensively by the Experiment Stations. Early work has shown that round brooders are more desirable than the square ones and for cheapness, a brooder made out of an ordinary cheese box is to be commended.

School and Home

CULTIVATING THE CORN FIELD

By J. H. Shepperd, Dean N. D. A. C.

Weeds and drought are the two great enemies of corn. In the northwest this crop is grown usually to clean the land and to put it in good tilth for small grain crops. Flax, wheat, and in fact any of the small grains do unusually well after a crop of corn. The second year after corn has been grown a crop of small grain will show a considerable increase, and the third year a slight one.

More stock feed will grow on an acre of drilled corn which is planted very thick in the ordinary 3½ foot row than when it is planted in hills by the check-row system. It is much more difficult to keep drilled corn clean than corn which is in hills, but most of our people do not even keep hill corn as clean as it should be to prove most profitable. Two-thirds of the feeding value of the corn plant is in the ear, so that corn planted in hills should be seeded thin enough to give the ears a chance to develop. One-fifth more of digestible food material is contained in the ripe ear of corn than in the same ear when it is in the glazing stage. On this account it is advisable to get the corn planted in good season and give it every condition favorable to early ripening.

Use the harrow or weeder on the land which has been planted to corn, at regular intervals, once a week or ten days from the time it is seeded until it is about five inches high. Whenever a crust starts to form on the soil after a rain, the weeder or harrow should be run over the field. This work with the machine destroys the weeds which will sprout as a result of the rain and prevents a loss of moisture by evaporation. Either of these effects alone will be worth the short time necessary to cover the corn field with the harrow or weeder.

Corn can be harrowed before it is up and afterward until it is about five inches high. Harrowing has the advantage of stirring the soil in the hill between the stalks and thruout the field so that the weeds in the hills are destroyed as well as those between the rows. The man who runs the cultivator in the corn field is a little careful about getting close to the hills with the cultivator when the corn is small for fear of covering it up, which will make it necessary for him to stop and uncover the corn.

Corn which is two or more inches high looks as if the harrow is killing it and bears this bedraggled looking appearance for a day or two, after the harrowing is done. In the course of a week or ten days, however, it shows an improvement over the corn which has not been harrowed and usually at husking time the difference is very marked. Many a man is scared out and gives up the job when he sees a number of stalks uprooted and the bedraggled appearance of the field thruout as a result of his harrowing. After he does this once and notes the appearance at the time that corn is in tassel and therefore he seldom hesitates again to harrow his corn. Incidentally, I might say in passing that potatoes may and should be handled in exactly the same way in cultivating with the harrow or weeder.

Where wild oats are the weeds to be contended with, some will spring up in the hills of corn with the best cultivation and with the harrowing which I have described. They are not numerous but are enough to leave a large amount of seed for the following season. These can be pulled rather readily however, and should be removed by hand-pulling before they are far enough advanced to ripen seed from the sap which remains in the stem when they are uprooted.

The corn grower should constantly bear in mind that while growing his corn, he is preparing for future wheat and other small grain crops. That he is reducing the weeds in his soil for a number of years to come. That the easiest way to destroy a weed is to coax the seed to sprout and then uproot it while it is young. Unsprouted weed seed is there as a menace to any crop which is put into the land. Each harrowing and cultivation which follows it tends to warm up the soil, give the weed seeds an encouraging seed bed and incidentally uproots and shakes out the weeds for the sun to dry that is if they have started since the last cultivation.

With these points in mind and the further fact that a loose covering of soil will prevent water from evaporating from the soil, the corn grower can proceed to do effective work with the harrow and the cultivator. Even when the rain does not fail to destroy the soil mulch by running it together, the constant rising of water from below will gradually destroy the mulch without the aid of the rain, and the corn grower should stir the ground by cultivation once a week, even if rain does not fall.

A BOY'S TRAINING

Has any mother suggested, says Harper's Bazar, that after a boy reaches ten years of age he should be thrown as much as is practically possible with men? My own son is an example. His mother's training of child and infant was ideal. As he grew he came gradually under my influence, with his mother's hearty-co-operation. In no way an extraordinary boy, perfect in health, beautifully formed physically, and normally bright and intelligent, of good standing at school, fond of books, and capable of climbing, running, and playing on an equality with other children of similar age, he offered good material for training.

At nine years of age I taught him to swim, and now, not twelve, he is quite capable of taking care of himself in any depth of water, and in any reasonable current. At ten he could handle a canoe nicely, and is learning to sail, tho not yet strong enough to manage a boat. I have trained him to the uses and dangers of firearms, and in the shooting-field he's a better and far safer pair gun than many men who have shot with me, and he can be relied upon for at least a bird or two, with a light-weight shotgun, which he can use without exhaustion. He is one of several young boys who are made quite as welcome as their fathers at shooting parties, and has been taught to care for his own kit and bag, to sleep on the ground, build a fire, and boil coffee. With rifle or small pistol he can usually hit a twelve-inch target at fifty yards. The same conditions apply to fishing, including care and carriage of tackle, baiting, hooking, landing, and cleaning of fish. Of course the

boy cannot ride well, as his legs are too short to get a knee grip—but he can stay on a horse at trot or canter.

FASHIONABLE DRESS IN THE DAYS OF MADISON

There was a pleasing imitation of the costumes of the classic Greek age and the gowns, which were cut low in the neck with a muslin ruff behind the head, hung in graceful, natural folds. Tight lacing was not in vogue, and the lines of the waist were not important to a lady wearing the "round gown," for it was gathered loosely only a short distance below the shoulders. The gloves came up to the elbows, and the slippers of kid or silk barely covered the toes and had no heels. In England at this time a fine lady when she went to court wore an enormous dress puffed out with hundreds of flounces and frills; but there were no especial costumes prescribed or worn for the White House. The skirts of the older women trailed upon the ground, but there were no real trains as we understand them, and the girls wore skirts which barely reached to their ankles.

The costumes of many of the men lent color to the scene. Altho the President himself wore a black suit with black silk stockings, others had light blue or green coats, garnished with large gilt or pearl buttons, the long narrow tails reaching down to their calves. Pantaloons were coming into general use, but were not as yet permitted for evening wear, and buff-colored or drab smallclothes were worn with white silk stockings. It was about the time that Beau Brummel introduced starch into all the neck-cloths of Europe, and many gentlemen in America obeyed his edict. The ends of their shirt collars stuck up over their chins and reached to their ears. Some of them wore what they called "pudding cravats," which were designed to puff out the chest and make it look deep; and all had fine cambric shirt-frills. They wore patent-leather pumps or low shoes with buckles, boots being forbidden for the evening, because the blacking came off when it came in contact with ladies' dresses. Some of the older men had their hair powdered, combed back and gathered in a queue behind, but the style was going out, and the younger men wore it cut and parted at the side, while a few fops had it in curls over the head.

The snuff-box was in use, and Mrs. Madison carried one made of lava, but after her young friend Henry Clay came to Washington she took her snuff from his box, when he was at her receptions, not only as a mark of her favor, but because he always carried a fine brand of rappee.—Gaillard Hunt, in Harper's Magazine for June.

COST OF LIVING

"I believe the solution of the cost of living problem lies in good hands," says Secretary of Agriculture Wilson. "The farmers are awake and no country is in danger when this is the case.

"The government is straining every effort to improve the soil and is accomplishing wonderful things, but there remains other things to be done.

"We are forgetting the old home economics. We buy too much in paper bags, forgetting the sacks and barrels. One of the best things I could recommend to you would be the appointment of a committee to study the economics of the home. Rice, sold at wholesale in Louisiana at 2 cents a pound, cost 8 cents a pound in the north in a paper bag.

"THE RAMRODDERS"

Three things stand out conspicuously in "The Ramrodders," the new novel by Holman Day, just published hy the Harper's. These are the spirit of youth in love and in affairs, the spirit of machine politics pointing backward instead of forward, and the spirit of bubbling American humor winning victories where battles would not. The story opens in a town in Maine. The chairman of the State Committee, looking in to see a "perfectly managed" election, finds rebellion against the local boss, Thelismer Thornton, an embodiment of dry Yankee humor, who proposes to name for the Legislature his grandson. The latter's revolt against the plan is reinforced by the heroine, a girl of the woods. There is political unrest thruout the State—divisions over "deals" and spoils and the pretended enforcement of the prohibition law. The party is in danger. Thornton rises to the occasion and re-enlists old General Waymouth, a Civil War veteran and former Governor.

Young Thornton discovers that his playmate, Clare Kavanagh, the girl of the woods, has grown to be a woman. But in the political battle which he enters he is thrown much with the woman of the world, Madelaine Presson, daughter of the State chairman. Young Thornton pledges himself to General Waymouth, who stands for simple honesty. From a decision between Clare and Madelaine young Thornton is forced to turn to the State convention, the uproar and intrigue of politics. Here the story tears aside the disguises and pretences of politicians and shows men as they are and things as they happen when the political game is played. After a series of exciting scenes, General Waymouth triumphs. But his nomination is followed by apathy on the part of the "Black Horse Cavalry" of the State and the Old Guard. Young Thornton has been drawn closer to Madelaine Presson. Her worldly wisdom and brilliancy attract him, altho the thought of Clare is with him. Waymouth and Thelismer Thornton shake the State Committee from its sullen apathy and the General is elected. Young Thornton, in the Legislature, is thrown still more with Madelaine. Clare has gone away to gain training for the world. The descent of the woman suffragists is one of the vivid pictures of a Legislature at work.

The old Governor is beset by the "ramrodders," the extremists—on the side of prohibition and against it. Young Thornton has been tempted to compromise. But he renews his allegiance to the Governor, who secures legislation providing for the rigid enforcement of the prohibitory law as it stands. The result is a cataclysm.

Meantime, young Thornton's affairs of the heart become complicated. He faces and punishes a lying scandal. He proves himself speaker and leader, and becomes a dominating figure on the side of law and might. His rugged old grandfather feels a pride which shines thru his hostility. Clare comes on the scene, and with young Thornton, finds a tender comprehension of life not possible alone. The outcome is the true romance. It is safe to say the searchlight has never been thrown more vividly on the inner life of those who make and mar the laws. It is a story of the realities now before Americans thruout the country.

"The Ramrodders" is also a revelation of Mr. Day's mastery of native American humor. There has been nothing more quaint and incisive than the dry wit of Thelismer Thornton. His sayings and stories are the kind that pass into proverbs and familiar quotations. After all, it is the local character and humor blossoming from the soil which have been most distinctive in American fiction.

HOW TO MAKE A FIRELESS COOKER

Miss Jessie M. Hoover, Professor of Home Economics

Articles which require long slow cooking are successfully cooked in the fireless cooker. Rice, oatmeal, corn meal mush, graham mush, boiled meat, stewed onions, cabbage, soup bones,

beans, macaroni, tapioca, chickens (no longer young) tough beef, hams, and in fact anything requiring much time. Remember, the cooker does not generate heat, it only retains heat already generated; therefore, the food must be thoroly heated before being placed in the cooker, and in case the cooker is opened before the food is done it will be necessary to remove the kettle and reheat the food.

Space will not permit of a full time table, but suffice it to say that the food must be thoroly heated to the center before it is placed in the cooker. With oatmeal, 3 minutes boiling is sufficient; beef requires 30 minutes for 4 pounds. The time required in the cooker is about two and one-half times as much as is required for cooking on the stove.

Rolled Oats.—Take one cupful rolled oats to two cupfuls boiling water, one-half teaspoonful salt. Let the mixture boil for three minutes. Cover tightly with lid and place in fireless cooker. If prepared at night it will be ready for breakfast next morning, and it will be steaming hot. If only a small quantity is desired, it will be much more difficult to maintain the high temperature of the food, in which case a small cooking utensil containing the cereal can be immersed in boiling hot water; this will give the desired volume. The two utensils are covered closely and set into the cooker over night.

To Cook Meat.—Sear over the outside, then add boiling water and boil for 15 to 30 minutes or more, according to the quantity. Four pounds of meat will require about 30 minutes.

The Insulated Oven

Heat the soapstones or iron plates until they sizz like flat iron for ironing, or until they are from 360 degrees F. to 400 degrees F. Place one heater on lower grate of the oven and the other on the upper grate, place the article to be heated between. The heaters should be as close to each other as conditions will permit.

Prepare bread, angel cake, meat, etc., in the usual way and place in this baker. The result will be a uniformly brown crust and moist crumb. This, like the cooker, should be used when much time is required. Unlike the cooker, the raw food is placed in the oven cold, and the time for baking is very little longer than by the usual method.

The question is often asked, Does it pay to bake biscuits by this method? In my opinion it does not pay. But when you are needing your oven for a longer period than 30 minutes, then much fuel and heat is saved.—In the A. C. Extension for April.

A recent investigation by medical authorities shows that of 2,169 school children under observation, only 6 claimed to eat no breakfast. Sixty-eight per cent of the children ate bread, 35 per cent a cereal, 40 per cent eggs, and 18 per cent cakes, and 58 per cent drank coffee, 15 per cent milk, 11 per cent cocoa, and 11 per cent tea. The inference is drawn that poverty is not the real reason why children go breakfastless to school. The real cause is the bad hygienic conditions of the home and the capricious appetite in the morning.

A GOOD "ROAD AGENT"

How he stumped a Missouri county in favor of "rock roads" is told by Charles Dillon in the issue of Harper's Weekly for April 9th. "In the county to which I had been assigned," he writes, "the people rear back and strike out with all their feet at once and froth at the mouth at the mention of bonds, taxes, and automobiles. Also they suspect you of trying to get their signatures to a mortgage for a lightning-rod or a washing-machine, or they fear that you intend to ask them to renew their subscription to the paper." After one or two unhappy discussions, every man he hailed knew all about him and had his answer ready. "If I encountered a farmer on the road, he drove by as if he had been sent for a doctor. One man told me I resembled the county assessor, and it was weeks—after I had seen that official—before I knew what a body blow I had been dealt."

Seeds, Trees and Gardens

C. B. Waldron, N. D. A. C., Editor.

Alfalfa

L. R. Waldron, Dickinson, N. D.

The legislature of 1904-1905 made a provision whereby the Dickinson Sub-experiment station was established. The early years of a station are necessarily rather barren but we believe that the results secured during the first five years, with regard to alfalfa alone, will more than pay the total expenses of the station to date, when they have become applied to the agriculture of North Dakota. The results with alfalfa have more than a local application. They may be applied to farming conditions over the entire northern United States, east of the Rockies. It will take several years for the results to be put into practice but eventually this will be done.

But while the results already secured with alfalfa promise so much, the experimental work with alfalfa has scarcely begun. The work for the next four or five years ought to be of even greater benefit than the work of the past has been. We are becoming squared to our work and we are beginning to see the nature of some of the alfalfa problems that lie before us for solution. In many things regarding this remarkable plant, the farmers of North Dakota may draw upon the experiences of the farmers of other states but in other respects the problems of the two Dakotas are unique and must be given a solution of their own.

GRIMM ALFALFA IS HARDY

This station is thoroly convinced at the present time of the practicability of growing alfalfa over comparatively large areas of North Dakota. A few general principles must be followed and success will generally result. The most important thing that we have learned at Dickinson is the kind of alfalfa that may be depended upon. Alfalfa is a long-lived perennial and is more or less hardy. If we were unable to find a hardy alfalfa for this state, then we might as well cease to talk about the plant for it would be idle to expect that farmers would continue to have an interest in a crop that was continually

suffering from severe winter-killing. The Grimm alfalfa is so hardy that we may rest assured that it may be successfully grown in North Dakota. If hardiness is assured, then about the only other point that need cause concern is the ability of alfalfa to make paying crops with the normal rainfall in North Dakota. It may be said regarding this point that any accurate knowledge is almost entirely lacking. We do know, however, that alfalfa is a drought resistant plant and we know also that farmers are growing crops successfully in North Dakota that are not more drought resistant than alfalfa. The supposition is then that the lack of water in this state is not going to be the prohibiting factor.

ALFALFA CULTIVATION BESET WITH DIFFICULTIES

While the outlook for the cultivation of alfalfa in North Dakota is excellent, yet it must not be forgotten that there are certain difficulties to be overcome of no small moment. As stated previously, it is the Grimm alfalfa that the farmers of the Dakotas must depend upon as that is practically the only alfalfa available that is hardy enough for our conditions. There are probably not more than 5,000 acres of Grimm alfalfa being grown at the present time. It is from this small acreage that we must look too for the seed to increase our sowings. If a considerable portion of this acreage and of succeeding acreages were devoted to seed production, then the comparatively large acreage could be sown to Grimm alfalfa each year. As a matter of fact, much of the crop will be devoted to hay production and the sources of seed will thus be cut off. It is scarcely putting it too strongly to say that it is a public duty that the Grimm alfalfa be increased as rapidly as possible. Any one having Grimm alfalfa becomes a public benefactor in devoting the acreage to seed production.

THE ORIGIN OF SOME OF THE BAD WEED SEEDS

By Henry L. Bolley, A. C., N. D.

To the Farmers and Seed Dealers of the State of North Dakota:

The examinations at the Seed Control Laboratory and the inspections made in the field are giving some very interesting information as to one origin of the worst weed seeds which affect agriculture. The following notes will be of interest to you:

Very many of the Brome Grass seed samples which we have been able to examine contain high percentages of Quack-grass seed. Slender Wheat-grass seed is also a source of distribution of Quack-grass seed. Canada Blue Brass, Lawn mixtures, and Kentucky Blue Grass which contain admixtures of Canada Blue Grass are very liable to contain the seeds of Canada Thistle. Alsike Clover and White Clover seeds seem to be the chief source of distributing Field Sorrel and Catchfly. Indeed, almost any sort of small seed that can be raked up off of the ground is liable to be in alsike. The Field Sorrel is one of the most destructive types of weeds in light or sandy soils. No farmer or dealer should buy or sow any one of these kinds of seed without a very careful inspection.

Millet and flax are the chief distributors of Field Mustard, Hare's-ear Mustard, French Weed and False Flax. Red Clover is a great distributor of Buckhorn, Ribbed Plantain, Lance-leaved Plantain or so-called Ribbed Grass. Alfalfa seed appears to be the

chief distributor of Dodder and Sweet Clover. Timothy seed seems to be a great carrier of Tumbling Mustard, French Weed, and especially Pepper Grass.

With regard to the Quack-grass in the Brome Grass, some of the wholesale seedsmen are informing the local purchasers that there is no Brome Grass seed to be had that does not contain Quack-grass. Some simply inform the intended purchaser that they have a good quality of Brome Grass seed but that it does not comply with the North Dakota law. In these cases it is a good thing to remember that not all the farms in North Dakota and Minnesota as yet raise Quack-grass, and so you have reasonable right to doubt the statement that there is no Brome Brass seed free from Quack-grass seed. If a seedsmen tells you that his seed does not fit the North Dakota law it is worth looking into carefully before purchase. I think you will agree with me that there is no "good" seed of any kind which contains Canada Thistle, Sow-thistle, Dodder or Quack-grass, and that it is better not to sow any Brome Grass seed or sell any Brome Grass seed if it must carry with it the seeds of Quack-grass.

The Seed Laboratory only has a chance to examine a small package of seed, always less than a pound and usually but a few ounces. If in a few ounces of Brome Grass seed we find even two or three Quack-grass seeds what will you as a purchaser distribute per acre with each 16 or 20 pounds of Brome Grass? This is the question for you to have in mind. My advice is: Do not let anyone deceive you by telling you that the seed is good but does not comply with the North Dakota law.

Many farmers wonder why we ask them to take the sample of seed from the closed bag in the presence of a witness, both persons signing a statement that it is a fair sample of the seed purchased. The reader will understand why when I say that this is a good legal procedure and fair to all persons concerned. Samples taken in the manner indicated are better evidences than ones less carefully taken. Furthermore we must publish our results on such examination and we cannot do so on insufficient data.

If the farmers and small seed dealers of the state wish to help hold all seedsmen on their merits they will not neglect to give us the full information asked for when sending in samples. It is but fair to themselves and to the men or firms who sell the seed.

On an average the corn which we are receiving at the Laboratory does very poorly in germination. If you want us to help you send in the corn samples now. Do not send less than two to four hundred grains.

KILLING DANDELIONS BY THE USE OF IRON SULPHATE

P. O. Longyear, Colorado Agricultural College, Fort Collins

In order to determine the effectiveness of iron sulphate in ridding lawns of the dandelion pest, the writer conducted the following experiments during the past summer: A piece of old lawn, in which the dandelions were uniform and so thick as to nearly hide the soil, was selected on the Colorado Agricultural College grounds. This was laid off into small plats of equal size and treated as follows, using commercial sulphate of iron or "copperas," dissolved in water and applied with a bucket spray pump so as thoroly to wet the foliage of every plant:

Plat No.	Strength of Solution	Date of Application	Result October 1
I	20% iron sulphate	Aug. 6, Aug. 31, Sept 23	No dandelions to be found
II	10% iron sulphate	Aug. 6, Aug. 31, Sept 23	Less than 1% of dandelions present
III	5% iron sulphate	Aug. 6, Aug. 31, Sept 23	About 20% of dandelions present
IV	2½% iron sulphate	Aug. 6, Aug. 31, Sept 23	Dandelions injured To some extent

The first spray on Plats I and II caused the dandelion leaves to turn black and die; but new leaves were pushed out from the strongest and oldest plants in a few days. The grass was also somewhat blackened at first and thruout the experiment the color was a darker green than that on untreated areas. By the first of October all dandelions had completely disappeared from Plat I, while only two or three were to be found on Plat II. It is evident that a 15% solution should be practically as effective as the 20 per cent for this purpose, and that three applications, the first as soon as the plants are in full leaf in the spring; the second in about three weeks, and the last in midsummer, should prove effective in controlling this pest. Altho the grass was very thin on the areas treated it soon began to thicken and by October 1st formed a fairly close sod. Nearly all the white clover was killed by the two strongestsolutions. This could be replaced quite readily, however, by scattering a little seed over the soil after the lass treatment, keeping the lawn well watered for a week or two. In treating lawns bordered by stone or cement walks care should be taken to keep the solution from wetting them, as it produces a rather permanent yellowish stain.

REST

Rest is not quitting
The busy career,
Rest is the fitting
Of self to one's sphere.
'Tis the brooklet's motion,
Clear without strife,
Fleeting to ocean
After this life.
'Tis loving and serving
The highest and best,
'Tis onward, unswerving,
And this is true rest.

—Goethe.

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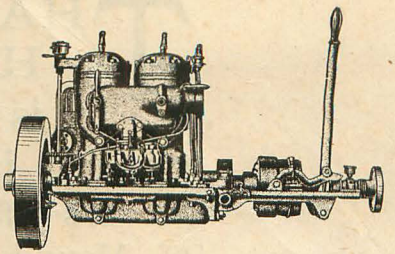

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